Dawley: Wellington: Oakengates

Consultants' proposals for development

A report to the Minister of Housing and Local Government
by John H. D. Madin and Partners
in association with
Economic Consultants Limited
Freeman, Fox, Wilbur Smith and Associates
Durnford, Lee and Wardell
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To the Right Honourable Anthony Greenwood, M. P.
Minister of Housing and Local Government.

On 21st December 1965 your predecessor asked us to investigate and report upon the best way of expanding Wellington/Oakengates to take 50,000 people from the West Midlands Conurbation by 1981, in addition to the 50,000 who are to move into Dawley New Town, giving a total intake of 100,000 people in the two areas together.

Our study is in two stages, and this report marks the completion of the first stage. In it we review the implications of the proposal, recommend an area for development and indicate the possible form and extent of development for the whole area, including the area at present designated for Dawley New Town.

You will see that the report necessarily deals in some depth with the problems presented by the site, and also outlines the conditions which must be met in realising the development within fifteen years - the time scale set by your Ministry.

Given these conditions, we have no doubt that expansion will be successful. Wellington and Oakengates will benefit from the stimulus of new growth and the whole area, including Dawley New Town, can be comprehensively developed into a large, flourishing and balanced community. Furthermore, the area has the capacity to accept continuing growth in the longer term and is strategically well sited to do so.

Our second report, to be presented towards the end of next year, will be concerned with the draft basic plan for the development of the overall area when this is decided.

Following our appointment we invited the participation of the following consultants, who have worked with us on this study and to whom we are grateful. The conclusions expressed in this report are theirs also.

Economic Consultants Limited have been concerned with demographic and economic aspects.

Freeman, Fox, Wilbur Smith & Associates have been concerned with transportation studies.

Durnford, Lee & Wardell have advised on mining and geological problems.

J. St. Bodfan Gruffydd has reported on landscape aspects.

In addition to the consultant team, valuable advice on drainage aspects and industrialised building was given by Mr. Lawrence Buckthorp and Mr. Ceri Griffiths, respectively Chief Engineer and Chief Architect/Planner of Dawley New Town, though neither they, nor the members of the Corporation have been concerned in our recommendations.

We have received much help from your Ministry and other Government Departments and we are also grateful to the members and officers of Shropshire County Council, the District Councils, Dawley Development Corporation, the Public Utility Authorities, and numerous other bodies with whom we have consulted. We are also indebted to Mr. Sheppard Fidler for the use of survey material collected by his team during his previous study of the area.

This report is published to give the opportunity for comment and discussion on the proposals. We hope that the explanations and conclusions set out in this report will be helpful to those who judge them.

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1. CONCLUSIONS AND RECOMMENDATIONS

1.1 Dawley, Wellington and Oakengates are the main centres of a scattered urban complex based on the Coalbrookdale Coalfield in East Shropshire. At 1965 the estimated population was 68,500, about 47,500 being in Wellington and Oakengates and 21,000 in Dawley. This population could grow by natural process to 83,000 by 1981, an increase of 14,500.

1.2 Our Terms of Reference (which are given in Memorandum form in Appendix A) call for a planned intake of 100,000 persons by 1981. This intake, together with its own natural increase of 20,000 would result in a population of nearly 120,000 due to immigration, so that by this date the total population would be of the order of 200,000 persons.

1.3 The choice of an area for rapid growth is strongly influenced by restraints due to past mining conditions, agriculture and drainage. The distribution of population and the phasing of new growth must also be considered in relation to existing and proposed town services.

1.4 We recommend that, to facilitate the integration of old and new development into a physical, economic and social unity, the area defined for development should include both the existing built up area of Wellington/Oakengates and Dawley New Town.

1.5 From our examination of the problems and opportunities existing in this area we conclude that the housing of 100,000 immigrants is physically feasible. Rather more than half this number should be housed in the Dawley Area, and the balance in Wellington and Oakengates.

1.6 The area recommended for development, together with outline development proposals, is shown on Map 10. In addition to the area already designated for Dawley New Town, approximately 9,200 acres, a further development area of approximately 12,500 acres is proposed. The total area for development, including Dawley New Town, is approximately 21,700 acres.

1.7 Within this area 7,800 acres are already developed, or committed for development by planning permissions and continuity proposals for Dawley New Town. Some 4,900 acres are affected by shallow mining or other geological restraints. Development will require reclamation of affected land and the use of agricultural land, some of good quality, north and west of Wellington. After deduction of land needed for drainage works, mining reclamation and proposed amenity areas, such as the Severn Gorge, the area required principally for urban use amounts to 16,000 acres.

1.8 Complementary planning policies for the surrounding area should be initiated at an early stage, to regulate the pressures that will inevitably develop as a result of expansion, and safeguard amenity values. For this purpose the setting up of joint planning machinery should be considered. Recognition should also be made of potential future growth opportunities after 1981 which lie to the east and west of the Development Area and which can be channelled into a form consistent with the principle of corridor growth now being studied by the West Midlands Economic Planning Council.

1.9 Achievement of the 1981 growth target in the context of existing conditions will call for exceptional co-ordination, administration and technical skills. The demands of new growth and renewal will need to be reconciled within a programme of development without precedent for any new town scheme in this country. Besides housing, care will be needed in the phasing of industry, central provisions and other elements, to achieve overall balance, both during and at the completion of the build up programme. We believe that these requirements will be best met by the appointment of a single development agency. Special efforts may also be necessary by the other authorities who will be required to contribute supporting facilities during the programme.

1.10 The feasibility of implementing the 1981 programme from the industrial and building labour resources standpoint has also been considered. This question is not concerned solely with the locality of the study, but with policy and priorities which concern the strategy of movement from the Birmingham Conurbation to new locations elsewhere within the West Midlands Region. These issues are being investigated and will be reported upon later. Meanwhile, in Chapter 7 of this report we set down what we regard as the conditions necessary for the achievement of rapid growth.

2. REGIONAL CONTEXT

Location.

2.1 Dawley, Wellington and Oakengates, are the primary centres of the Coalbrookdale Coalfield, the historic industrial complex by the River Severn in eastern Shropshire.

2.2 They lie within an area of fertile and productive land some 30 miles west of Birmingham, 10 miles clear of the western fringe of the West Midlands Conurbation, and 11 miles from Shrewsbury. Wolverhampton is the nearest main centre of the Conurbation, 17 miles away to the east.

2.3 Shrewsbury, the county capital, is the service and administrative centre of a vast rural hinterland, extending deep into Central Wales. This is limited in extent to the east of Shrewsbury where the Study Area, in particular Wellington, exerts an intermediate role of influence midway between Shrewsbury and Wolverhampton.

2.4 In Map 1, Dawley/Wellington/Oakengates, the most westerly of the locations chosen in the West Midlands Study for expansion by 1981, is shown in relation to the West Midlands Conurbation, Merseyside and the Severn Estuary. The provisional Conurbation Green Belt is also shown.

Growth in the West Midlands Region.

2.5 The civilian population of the West Midlands Region grew between 1951 and 1965 by 13.2%, the second fastest rate among the Economic Planning Regions. The growth was due principally to a high rate of natural increase, higher than in any other region. There has also been appreciable nett immigration into the Region since the mid-1950's, although as a percentage of total population this has not been exceptionally high, and it has decreased significantly since the peak of Commonwealth immigration in the early 1960's. Almost one half of the Region's population of 4.9 million in 1964 was concentrated in the Birmingham Conurbation, although most of the population growth has been in other parts of the Region.

2.6 The natural increase of the Region's existing population up to 1981 is forecast at some 800,000. The latest estimates of future inter-regional migration trends suggest that immigration into the West Midlands is likely to continue at least up to 1971 since a labour shortage is expected in the Region, even though some potential employment growth will continue to be diverted to other regions.

2.7 The West Midlands Study makes proposals for the accommodation of 530,000 overspill population from the Conurbation between 1964 and 1981, together with a further 150,000 from areas adjacent to the Conurbation equivalent to the natural growth in those areas. These proposals include three major projects at a greater distance from the Conurbation in the less densely populated parts of the Region. One of these projects forms our Terms of Reference. The others are at Worcester and Stafford/Stoke-on-Trent.

Employment.

2.8 Demand for labour in the West Midlands has, in recent years, been exceptionally strong, with low unemployment and high average earnings. Total employment (as the population growth would suggest) has increased more rapidly than in most other regions. Moreover, the activity rates of both sexes are higher than in any other region. Only in the rural west (West Shropshire and Herefordshire) and North Staffordshire have employment conditions been less buoyant, and even there competition for skilled workers is high and there is no serious unemployment problem.

2.9 The industrial structure remains favourable for continued growth. Industries in sharp decline are not important employers. Employment in the primary industries has fallen, in line with trends in the country as a whole, but the Region has a lower than average proportion of employment in these categories. It is on manufacturing industry that the West Midlands depends for its prosperity; as much as 53% of the Region's employment in 1965 was in this sector, as compared with 38% in Great Britain as a whole.

2.10 The Region is especially prominent in the growing metals, engineering and electrical goods and motor vehicles industries. Employment in the service sector (including construction) has increased faster than in any other region, although it still accounts for an exceptionally low proportion of total employment (43% in 1965 as against 57% in Great Britain). This does not necessarily mean that the Region is underprovided or that its service industries are peculiarly weak; in relation to total population, employment in services is not so far below average; moreover it has no seaports or major tourist areas, and productivity in some of its service industries may well be somewhat above average.

2.11 The two western counties of Shropshire and Herefordshire are largely dependent on agriculture so that the Dawley/Wellington/Oakengates Area can be regarded as an outpost of manufacturing industry in Shropshire. However, the eastern part of the county in which the area lies is reckoned to be within the employment hinterland of the Conurbation, although the Study Area itself is separated from the Conurbation's fringe by some ten miles.

2.12 Employment in the West Midlands appears to be likely to continue expanding in the foreseeable future. Demand for the products of the predominant manufacturing industries is expected to grow, and the Region is favoured by its large pool of skilled engineering labour and its central position on the country's main lines of communication. Demand for workers in service industries is also likely to expand considerably, although the actual growth of employment in the Region may be affected by the continued pressures of labour shortage in manufacturing industry. The new selective employment tax, while it is operated in the present way, will tend to restrain the growth of service industries, though to what extent is incalculable at present. The latest estimates of labour supply and demand indicate that nett immigration may well continue, the amount of course depending on the export of jobs and increases achieved in labour productivity. (There is little scope for increasing the labour supply beyond the estimated level, without immigration, as activity rates are already so high).

2.13 The population in the peripheral and satellite developments proposed in the Study are expected to rely to some extent on the Conurbation for employment, but the three more distant projects are intended to be independent in this respect. This will, of course, involve some dispersal or diversion of industry away from the established major centres to the new areas; in the case of Dawley/Wellington/Oakengates, as we show later, a very substantial movement of industry is likely to be needed if the aim of independence in employment is to be achieved.

Communications and Transportation.

2.14 The Dawley/Wellington/Oakengates site is conveniently located to the communications network serving Great Britain and the Midland Region. The connection to the inter-regional system is such that much of the movement occurs around rather than through the Study Area, but long term strategy for the development of the Midland Region by a westerly expansion implies a new range of demand upon the local network and possibly upon the rail linkage serving the Study Area.

2.15 Two primary roads provide routes between Merseyside/ Deeside and the cities along the lower Severn Valley. The most important of these systems is the M.5/M.6 motorway now being completed which will provide direct, high speed connection between Gloucester, Bristol and Cardiff, and Liverpool/Manchester along the eastern side of the Severn Valley through the West Midlands Conurbation. The A.49 provides a similar connection between these terminal points west of the Severn Valley along the Welsh boundary, but the route is less direct and of a lower standard.

2.16 These north/south inter-regional routes are connected by two trunk roads. The A.41 at the eastern extremity of the Study Area provides a direct route from the West Midlands to Deeside. Increased volumes of traffic on this route will have little direct effect on the development of the Study Area except as it contributes to the necessity for a better entry into the north west sector of the Conurbation. The primary movement which is, and must be, accommodated through the Study Area, is that from central and northern Wales to and through the West Midlands to the south east. This movement occurs on A.5 which bisects the Study Area. Interchange with the M.6, 15 miles to the east and with A.49, 12 miles to the west in Shrewsbury, is provided from the A.5. Within the Study Area this route is the only satisfactory east/west link and, therefore, it presently performs an important local service in addition to its regional function.

2.17 Other Class 1 roads affecting the development of the area are those providing links to the urban centres within 20 to 25 miles. The A.442, connecting Whitchurch with Bridgnorth and Kidderminster, provides the only direct road link north and south through the Study Area between Wellington, Dawley and Madeley. The A.464 joins Oakengates with the north west of the Conurbation and the A.518 connects the Study Area with Stoke-on-Trent and Stafford.

2.18 The Study Area is bisected by a rail line providing services between Shrewsbury and Wolverhampton, where it connects with the main trunk line service from Manchester and Liverpool to the West Midlands and London. Other rail links exist within the hinterland but these are likely to be abandoned.

Future Influences.

2.19 Whereas firm decisions have not been taken on strategy for the future development of the Midland Region, several proposals have emerged which will influence both the inter and intra-regional communication networks which will have marked effect on the Study Area.

2.20 First, the creation of a city of the size being planned will induce a large movement to and from the present Conurbation. Since the development of Dawley/Wellington/Oakengates will depend heavily on Conurbation-linked industry, and car ownership will be much higher as it matures, large volumes of traffic will be generated. (Even at present levels of individual mobility, more than 17,000 trips have been observed daily between the West Midlands Conurbation Study Area and Coventry). Most journeys will continue to be made by private car unless an attractive form of public transport is provided.

2.21 Secondly, the West Midlands Regional Study suggested that a substantial overspill from the Conurbation would, in the short term, be accommodated at the periphery of the Green Belt in addition to the natural increase within such areas. But for the longer term, this study proposed a western axis of development from the Severn to the Dee in which the Dawley/Wellington/Oakengates complex and Shrewsbury are significant units, and in which their functions will be complementary and related.

2.22 Thirdly, the West Midlands Economic Planning Council in its preliminary comments on the West Midlands Study has placed more emphasis on radial corridors of growth outwards from the Conurbation. Two of these corridors would form important parts of the regional context of the Study Area, the first aligned along M.6 from the Conurbation to the Pottsries, and the second, from Wolverhampton through Shropshire and north to the Dee, as a longer term development. The timing and form of this latter proposal would clearly depend a good deal on decisions on the Dee barrage and the inter-regional road framework.

2.23 These proposals, taken individually or collectively, will result in rapid change in the inter and intra-regional requirement of ths present road system which, in large measure, is rapidly becoming incapabls of handling the increasing load.

3. APPRECIATION OF STUDY AREA

AREA OF STUDY.

3.1 Account is now given of the activities and resources of the local area forming the context of the expansion study. The area considered covers almost 100 square miles, but the boundary is not constant for all of the data collected. Records of population growth and change relate to local authority or parish boundaries, whereas employment is determined within Ministry of Labour exchange areas. Landscape assessment is concerned more with physical or topographical boundaries, whilst communications and movement, whether to work or to shop, relate to the sub-region as well as the immediate locality. Map 2 shows the local administrative areas and Map 3 the existing land use.

HISTORY.

3.2 Settlement has been practically continuous since pre-Roman times. An iron age fort stands on the Wrekin, and the Romans built Watling Street across the area, with a fort at Vxacona (Redhill). To the west of the Wrekin, near the Severn, is the Roman City of Viroconium (Wroxeter). Numerous buildings survive from the Middle Ages, including the Abbeys of Much Wenlock, Buildwas and Lilleshall.

3.3. Although iron making began much earlier it was at Coalbrookdale, in 1709, that Darby first smelted iron on a commercial scale, using coke as his fuel, which, replacing charcoal made the Industrial Revolution possible. Here at Coalbrookdale the first metal rails in the world were used in 1767, and the first successful locomotive was built in 1802. The first iron bridge was cast at Darby's Works in 1779 and transported down the Dale to be built over the Severn.

3.4 The Severn was the artery to the outside world and from the river was developed a system of canals with ingenious incline planes to overcome the hilly topography.

3.5 Iron founding activities, first centred at Coalbrookdale, spread rapidly northwards and, together with the development of coal mining, pottery and tile making, increased after 1800 to reach a peak of prosperity by the mid 19th century. Thereafter, with the exhaustion of raw materials and the migration of workers to other centres of industry, notably the Black Country, the area suffered decline, from which it has begun to recover only in recent years.

LAND FORM, GEOLOGY AND MINERAL EXPLOITATION.

Land Form.

3.6 Map 4 shows the topography of the Study Area. Physically it is dominated by the Wrekin, a solitary volcanic outlier of the Welsh Massif, on its western side rising sheer from the Shropshire Plain to a height of 1,300 feet. Old, even in geological time, the Wrekin formed a horst against which the earth's crust has cracked - a bastion of stability in a sea of faulted sedimentary rocks.

3.7 The dominant strike of this very considerable faulting is south west to north east, giving to the Wrekin a comet tail of predominantly Carboniferous and Silurian rocks which weaves out east and north across the Triassic Plain of the Midlands, creating a plateau generally 400 feet high. The northern edge of this plateau, rising to over 600 feet, forms the principal watershed, draining southwards to the Severn and northwards, by way of the low lying Weald Moors to the Tern.

3.8 To the south the plateau is riven by the Severn Gorge, a younger, but equally impressive feature of land form, born of pent up Dee water under pressure of glacial ice, when the new Severn carved its course southwards through a valley 300 feet deep.

3.9 Southwards and westwards the Clee Hills, Wenlock Edge, Long Mynd and Long Mountain build up to the high mountains of Wales, while to the east and north, the plain of the Midlands flows through the Midland Gap to join the plains of Shropshire, Cheshire and South West Lancashire.

3.10 Superimposed on the plateau and upon the Coalfield are the ground modelling activities of industrialised man which have resulted in the ravished landscapes of the area. Following as they do the south westerly/north easterly fault lines, and becoming colonised by vegetation, these man-made features give a certain edge to the natural geological form, and introduce a romantic quality to the ravished scene.

Economic Geology and Mineral Exploitation.

3.11 The exploitation of the mineral wealth of the district is the root of most of the physical difficulties that now invest development. The extent of these restraints is shown on Map 5.

3.12 In the Area studied, shallow mining affects about 7,500 acres, extending in a swathe through the west and central part of the Coalfield, from the south around Broseley and almost up to Donnington. - a distance of eight miles. As the shallow outcrops were exhausted, and as extraction techniques improved, later mining activity was directed towards the deeper lying seams which, due to the direction of the dip of the strata, lie further to the east.

3.13 In the outcrop areas the mine waste became spread over the surface in small tips from numerous shafts. In the areas of deeper mining the surface tips were more scattered, but correspondingly larger. This development has now ceased, stopping roughly at a line drawn between Granville Colliery in the north and Madeley Wood Colliery in the south.

3.14 Besides coal and ironstone, clays for a variety of purposes were obtained from shallow mines within or near the outcrop area. Production costs have caused these mines to be abandoned and clays are now almost wholly won by open pit working. Though generally termed fireclay, these clays have a range of chemical composition and physical properties and are used for a variety of products.

3.15 Quarrying for building material and road metal, as well as for limestone, has taken place sporadically on the outcrop of most of the harder beds, but these activities are now confined to a few quarries on and near the Wrekin and its associated hills. Sand and gravel deposits are few, small quantities being worked from the river gravels of the Severn and its tributaries, and the area relies largely on imported supplies.

Present Mining Activity and Future Prospects.

3.16 Coal and fireclay are the main minerals worked at present, the former by both underground and open pit methods, the latter by open pit only. Workings for fireclay are also the sites of coal production since the two minerals occur in association with one another.

3.17 Coal production from open pit sites north of the Severn currently runs at between 100,000 tons and 150,000 tons per annum, whilst those south of the Severn contribute some 5,000 tons. At current rates of clay and coal production the present working quarries north of the river, which are operated by private companies under licence from the

National Coal Board, have a life of 15/20 years. There are various sites available for future working, but on many of these both the coal and clays are owned by the National Coal Board.

3.18 Underground coal output comes from one shallow private licensed mine close to the Wrekin and two large deep mines operated by the National Coal Board at the east of the Coalfield. The Shortwood private mine has a small output and a limited life, and of the other two, the southernmost, Madeley Wood Colliery, is scheduled for early closure.

3.19 Granville Colliery in the north, at the eastern edge of Oakengates, has been extensively modernised and will be an expanding unit for many years. Production is expected to rise from the current 350,000 tons to 450,000 tons in 1968 and 600,000 tons in 1969, and may rise ultimately to 1 million tons per year. These increases will be achieved, at considerable cost, by opening up a new development area in the north east of the Study Area.

3.20 Clay production north of the River Severn runs at about 200,000 tons per year, and south of the river around Broseley at about 30,000 tons. About 70,000 tons are used locally for refractory bricks, building bricks, pipes and sanitary ware, and the remainder is transported by road to the Conurbation and other industrial areas.

Continuity North of the Severn.

3.21 For the future the prospects of the private clay and coal operators in the north are uncertain, as they may be unable to extend their operations beyond the terms of their existing licences, other than as agents or contractors to the National Coal Board, which has prospected for and proved extensive reserves of coal.

3.22 It is to be expected that the Coal Board will wish to work sites for both coal and clay on its own account. Provided that the clays are dug and stored with the same care as that bestowed by private operators, there seems to be no reason to suppose that continuity of supply cannot be ensured. Since the importation of clays from other areas will be likely to prove expensive and possibly require modifications to processing methods, there seems to be a good case for arranging development to allow for working sites in phase with economic demand, provided this can be reconciled with urban needs.

3.23 In general, where conflict is likely between nationally important minerals and potential development interests, it is to advantage if the mineral interests can be disposed of by rapid working before development takes place. At Princes End, within the Dawley New Town Area, agreement has been reached between the National Coal Board and Dawley Development Corporation to work the site very rapidly. The operation is planned to be completed by 1970/72 and the land is to be restored by suitable compaction to allow development by the late seventies.

Continuity South of the Severn.

3.24 South of the River Severn the future working areas are largely controlled by operators and users who will market only the surplus to their requirements. Over the next 20 years however, as the northern sites are worked out, coal and clay production will increase, rising to 40,000 tons of coal, and 150,000 tons of clay annually.

Ground Instability Problems.

3.25 The long history of mineral working has left a legacy of problems confronting urban development, the full extent of which will only become apparent as detailed investigations are made and as development proceeds. Generally these problems are of three types:

a. Those induced by filled and partially filled abandoned mine shafts and shallow underground mining generally lying within 60 feet or so of the surface, where there is risk of settlement due to the natural collapse of the old workings or their compaction by building loads. These conditions obtain over much of the exposed coalfield, but also occur to a lesser extent around isolated abandoned workings in the eastern part of the area. Some stowing and compaction of voids under heavy structures will be necessary, and the layout and arrangement of development will need to be modified to site conditions.

b. Those problems arising from the restoration of former open pit workings, where restoration was concerned only with agricultural use and where further variable settlement may occur.

Here, investigations may show that light structures of small plan area are the only acceptable general form of construction.

c. Those problems arising from open pit workings yet to be restored, and more especially the workings adjacent to existing urban areas where development may need to follow rapidly upon restoration. Advance precautions will need to be taken to secure appropriate drainage and compaction.

3.26 In summary, none of these conditions are such that they are considered to exercise total prohibition on development, but their nature and solution can only be determined by thorough site investigation of the affected area in advance of development.

3.27 A further problem to be overcome will arise from the disturbance of mining spoil by levelling and site development. Uneven settlement is likely, and allowance for this in terms of time for settlement and special foundation costs will need to be made. An additional hazard is the occasional presence of combustible material which may be set alight accidentally.

3.28 Mining subsidence of up to 15 feet will result from the Coal Board's operations at Granville Colliery, affecting the area generally to the north of A.5. This of itself need not preclude the area from building development, but will impose higher costs and restrictions on layout and construction methods.

Other Geological Restraints.

3.29 Additional to the disturbances caused by mineral extraction, other geological features which impose restraint include the peat deposits of the Weald Moors, and the landslip conditions in the Severn Gorge and tributary areas. Both of these preclude building development. Local limitations will also be imposed by the more major faults, among which the Lightmoor Fault, with a throw of some 400 feet, is the most significant.

Waste Disposal.

3.30 The problem of disposal of mining waste from Granville Colliery will occur on a growing scale, and could eventually amount to 250,000/300,000 tons a year. Taken over ten years this is equivalent to raising the ground over 100 acres by about 18 feet. In the Coal Board's view it is uneconomic to stow this waste under ground. Negotiations are in progress to determine the extent of this tipping in the Donnington Wood Area, and the appropriate ground moulding and landscape restoration requirements.

3.31 Production of pulverised fuel ash from Iron Bridge Power Station will create a disposal problem on a similar scale. This material is suitable for use in road foundations, stowing old mine workings and the manufacture of building blocks. All these uses however, will only absorb a small part of the quantity produced and economic disposal will, in a fairly short time, present a problem. The current practice of filling declivities of landscape value should be discouraged and arrangements made for the material to be used in a more positive way in filling disused mineral workings and in ground moulding.

AGRICULTURE.

Land Classification.

3.32 Map 6 shows the classification of agricultural land and is based upon material supplied by the Regional Office of the Ministry of Agriculture, Fisheries and Food.

3.33 Farmland has been graded according to the degree to which its physical characteristics impose long term limitations on agricultural use. The definition of each grade is as follows:

Grade 1	land with very minor, or no physical limitations to agricultural use.
Grade 2	land with some minor limitations which exclude it from Grade 1.
Grade 3	land of average quality with limitations due to soil, relief or climate, or to some combination of these factors which restrict the choice of crops, timing of cultivation or level of yield.
Grade 4	land with severe limitations due to adverse soils, relief or climate, or a combination of these.
Grade 5	land with little agricultural value with severe limitations due to adverse soil, relief, or climate, or a combination of these.

3.34 The high significance of land graded 1 and 2 is indicated by the fact that probably less than one quarter of the land in the country as a whole comes into these categories. Grade 3 is a broad grade with land quality ranging from medium in the lower part of the grade to good at the top. No part of the mapped area is Grade 5.

3.35 Apart from small pockets of poorer land at Hadley and Oakengates, the built up area is bordered on its northern and eastern boundaries by land of high quality (mainly Grade 2 and the upper part of broad Grade 3). To the west and south it is bordered by land of Grade 4 and the lower part of Grade 3.

3.36 The farmed land can be sub-divided as follows:

a. north and west of Wellington and Oakengates.
b. west of Dawley New Town.
c. south of Dawley New Town.
d. east of Dawley New Town.
e. east of Oakengates.

North and West of Wellington and Oakengates.

3.37 This area extends from the foot of the Wrekin in the south west to Lilleshall and Newport on the north east and, in the main, this gently undulating lowland comes within large well equipped farms with good layout. The type of farming is arable with livestock and a wide variety of crops are grown, including cereals, potatoes, sugar beet and field market garden crops. Soils are fairly light and easily worked and crop yields are usually high. With irrigation, which is already practised by some farmers, yields comparable with the best in the country can be consistently obtained. On the Agricultural Land Classification Map this land is graded 2.

3.38 The largest area of land of different character is that of the Weald Moors extending from near Crudgington in the west to near Newport in the east - an area of about 2,600 acres of peat fringed by low lying alluvium and clays. This area was brought into farm use about 150 years ago when the area was under-drained. This drainage system, to which reference is made later, has become increasingly useless with the shrinkage of the peat and the silting up of low level drains. The area in the main now only provides seasonal grazing. Although it has been placed in Grade 4 it would be upgraded to Grade 2 or even

Grade I if a major drainage scheme for the Strine river basin was ever undertaken and, as a result, the land became capable of intensive arable cultivation.

West of Dawley Designated Area.

3.39 This is bounded to the west by the Area of Outstanding Natural Beauty, including the Wrekin and its foothills. The land, graded 3 and 4, is undulating with steep slopes down to the Severn on its southern edge. It is mostly grassland, but some cereal crops are grown. Crop yields and the stock carrying capacity of this area are, on average well below those in the northern and eastern parts of the Study Area. Part of this land has been worked for open pit coal and restored to farm use.

South of Dawley Designated Area.

3.40 This is the area extending from Much Wenlock in the west to the River Severn in the east. Around Broseley and to the east of it is undulating land of Grade 3 and 4 - almost entirely under grass, although a few arable crops are grown. To the south west of Broseley land is under arable cultivation and is in the higher part of Grade 3 with a very limited area placed in Grade 2.

East of Dawley Designated Area.

3.41 Land of very high quality (mainly Grade 2, with some Grade 1) extends in a belt from Shifnal southwards where easily worked soils occur in a well-drained and very gently undulating surface. Most of the land is under arable cultivation, yields are high and a wide variety of crops are grown. The holdings are large and well equipped.

3.42 Between this area and the Dawley Designated Area Boundary is a margin of less versatile land where soils are heavier and mainly under grass and cereal crops. Output from this land is, however, high and although the land has been included in Grade 3, it is at the top of that broad grade.

East of Oakengates.

3.43 The farmland of this area, bordered by Oakengates and Lilleshall in the west, and A.464 to the south, varies from that of Grade 2 quality to the west and north west of Shifnal to poor sticky Coal Measure clays (Grade 4 and lower part of

Grade 3) on the edge of Oakengates. Away from the urban fringe the land is mainly under cereals and grass within large and well equipped dairy-arable units.

3.44 In summary, considerable importance is attached to the retention of land for continued agricultural use on the eastern and northern sides of the area, but a lower agricultural priority is attached to the land to the south and west of the Dawley New Town Area. The land in these latter two areas, however, happens to be the most affected by problems of spoil, shallow mining and open pit mineral working, both present and future, which pose relatively high cost and time penalties on the achievement of rapid development.

LANDSCAPE, SOILS AND CLIMATE.

Landscape Quality.

3.45 Map 7 defines landscape quality and the visual boundaries of landscape localities. The Wrekin Area is defined as an Area of Outstanding Natural Beauty, whereas the Severn Gorge has been recommended for special conservation in the proposals of the Dawley Master Plan. These are recognised as areas where development should essentially be subordinated to the interests of amenity. There are, in addition, defined areas of pleasant landscape which require extra care in development. Also marked are predominant boundaries of landscape localities within which development should be visually contained.

Land Cover.

3.46 Pleasant areas of mixed woodland exist in the south western and north eastern parts of the Study Area. The Wrekin, the Severn Gorge and the Dingles running from it are well clothed with trees. On the plain in the north, copses and shelter belts have been planted and there are fine woods around Lilleshall. There is also good hedgerow timber on the better farmland. Some of the tips have been planted and now have a close canopy of trees, others have been left alone for regeneration to take place naturally with willow, sycamore, birch and thorn.

3.47 Most of the Area drains directly into the Severn and there are no sheets of natural water of any size. There are, however, a number of monastic stews and numerous reservoirs constructed for industrial purposes during the last 400 years, of which Trench Pool in the north, and Randlay Lake in the south are notable. These and the disused canals have good recreational potential if they could be rehabilitated and woven into the recreation space network in some way. It can be observed moreover, that the peat which could be dug from the Weald Moors would afford one of the most satisfactory means of restoring derelict parts of the site and, co-incidentally, provide much needed water recreational space.

Soils.

3.48 The Area has not yet been mapped by the National Soil Survey, but sufficient sampling has been undertaken to indicate a confused situation with eight soil types, varying texturally from sandy loams to silt and clay loams with drainage from excessive to poor.

3.49 Restoration of the extensive disturbed areas presents a major problem in landscape development though this may be considerably hastened by scientific management, provided open spaces are grouped into sizable parcels.

Climate.

3.50 In the absence of local records, only general assessment of micro-climate is possible at this stage. This indicates favourable conditions for urban development generally, unprejudiced by industrial haze from the Midlands. In country of such broken terrain however, more detailed survey and assessment would be desirable before deciding on the location of some of the larger elements of town development.

SETTLEMENT DISTRIBUTION AND URBAN USE.

3.51 Map 3 shows the pattern of settlement and the predominant urban use within the Study Area. For the purpose of discussion it is useful to define the distribution of settlement in the following way: firstly in terms of the urban concentration centred mainly on the Coalfield which can be considered as forming two sub-areas on the north and south sides of the plateau, and secondly, the isolated towns and villages of the agricultural hinterland.

The Northern Area.

3.52 The most important group of settlements, accounting for some 48,000 persons out of the total population of nearly 80,000 for the Study Area, is concentrated north of the watershed. Here the towns of Wellington, Oakengates and their subsidiary settlements of Hadley, Ketley, Donnington and St. Georges have grown and coalesced into a sprawl of development five miles long, slightly over one mile wide to the west of Wellington, and widening to two miles between Donnington and St. Georges in the east.

Wellington.

3.53 Sheltered by the Wrekin and surrounded by good agricultural land on its western and northern sides Wellington is well sited on the main communications. It is the dominant commercial centre providing 70% of all employment in services. In recent years it has shown marked residential growth on its west and southern fringes, and because it stands aside from the Coalfield it is not so afflicted with the problems of industry, dereliction and spoil which bedevil the neighbouring settlements.

3.54 The town centre is visually attractive. The architecture of the narrow streets which form the core is perfectly in scale with the pedestrian who takes over from the traffic on market days. Mounting obsolescence in the areas immediately around the town's core and increasing pressure from traffic have brought about proposals by the County Council to renew part of the centre, which will require careful and detailed appraisal in the expansion context.

Oakengates.

3.55 Oakengates ranks as the second centre of the Northern Area and the commercial rival of Wellington. Apart from a new shopping precinct and civic area, now under construction on the north side of the High Street, the centre is in need of revitalisation and renewal.

3.56 The town centre lies in a natural bowl near the neck of a narrow valley between the higher land of Ketley and Snedshill. The convergence within this valley of railways and heavy industry, now creates obstacles to the improvement of access from the south. Likewise, the approaches to the centre from the east and north are somewhat constricted.

3.57 Elsewhere in the urban district, housing development has proceeded at a fast rate over the last five years, particularly at Trench, St. Georges, Wombridge and Ketley. Part has been built on reclaimed mounds of mining spoil. The remaining tracts of undeveloped and largely derelict land offer potential for reclamation as recreational and playing field use and could link with the reclaimed area of Wrockwardine Wood, notable for its canopy of beech planted by the Lilleshall Company nearly 130 years ago.

3.58 A considerable area of land has been granted outline planning permission for residential development, but has been held back pending the solution of sewage and water supply problems, and the preparation of a much needed overall plan.

Hadley.

3.59 Hadley lies between Wellington and Oakengates on the northern fringe of the urban area and is bisected by the Wellington/Newport road, A. 518. This road, which is narrow and restricted in Hadley centre itself, is subjected to severe congestion by traffic movement to the Hadley Castle Works of Joseph Sankey & Sons Limited.

3.60 Over 6,000 people, some travelling over long distances, work at this important plant - the largest in the Study Area. Its sustained and rapid growth has given a marked boost to the economy of the area and has been largely responsible for the immigrant growth of recent years.

3.61 Forming a physical barrier between Hadley and Oakengates is the area of mineral working, over 100 acres in extent, of the brick clay quarries and works of Blockleys Limited, who are producers of high grade facing bricks.

Ketley.

3.62 Ketley lies south of the A. 5 and consists of a straggle of original industrial revolution settlements, namely Ketley Bank, Redlake and Ketley. These run along the ridge of the plateau enjoying superb views over the Wrekin and the Shropshire Plain. Some reclaimed spoil mounds of particular landscape quality form a pleasant backcloth to the village. The third largest concern in the Study Area, Allied Ironfounders Limited, has plants on either side of A. 5 on the approach to Wellington. They currently employ some 1,500 workers. (The Company also has a plant at Coalbrookdale).

Donnington.

3.63 Donnington lies to the north east of Oakengates. The Ordnance Depot, employing nearly 5,000 workers, is the second largest employer in the district. To the south of Donnington is Donnington Wood, a wilderness of derelict land, which extends almost to A.5. Granville Colliery stands on the eastern fringe of this area.

3.64 In summary, if for the moment Wellington is excluded from consideration, we must conclude that the northern area presents fairly formidable problems to any rapid achievement of a co-ordinated scheme for redevelopment. Much of the available land has been committed by long term mineral interests, outline planning permissions, or is ruled out for development by topographical factors.

3.65 Urgent priorities arise in this situation concerning the improvement of communications and access and the positive lifting of environmental standards. Added to this is the need to make good deficiencies in open space and social provisions. Nearly all of these problems arise from the deficiencies of the existing situation, and the superimposition of the requirements of expansion upon them merely heightens their critical nature.

The Southern Area.

3.66 To the south of the watershed, the Coalfield is more sparsely settled with a population approaching 27,000. The newer growth which has so radically transformed the Northern Area is much less in evidence. The townships of Dawley, Madeley, Iron Bridge and Broseley still retain their late 18th and early 19th century identity, though Dawley and Madeley have some new growth on their fringes.

3.67 Much of the Southern Area is now included in Dawley New Town where the first phase of development, around Madeley, is planned to reach a population of 24,000 by 1972/73. This development is taking place in a unique context, for the settlements around the Severn Gorge are outstanding in that they were among the first settlements of the industrial revolution, and built mainly between 1750 and 1850.

3.68 Broseley survives virtually intact to this day, and despite new development on its fringes, retains, more than any other settlement, a most distinctive and unique character.

3.69 Down the valley from Coalbrookdale, and along the steep sided Gorge to Coalport, the whole fabric of this early industrial society survives: houses and churches, chapels and meeting houses, inns and factories stand closely together, lining the narrow streets negotiating the steep hillside in scale with the horse drawn transport on which local communication depended. The original furnace of 1638 is still preserved in the Coalbrookdale Company's Museum. Iron Bridge is a fascinating hillside town precariously perched on the northern slopes of the Severn Gorge. Below the town is the Iron Bridge of 1779, the oldest cast iron bridge in the world.

Settlements of the Hinterland.

3.70 The other principal towns of the Study Area, and their 1965 estimated populations, are those of Shifnal (4,500) and Much Wenlock (2,000). Other towns nearby are Newport (5,260) and Bridgnorth (8,900).

3.71 Though there is some reliance on Wellington and Oakengates for work and services, and particularly on Wellington for shopping, the towns and villages are to some extent self-contained physically and socially. That the settlements on the eastern side, among them Shifnal and Newport, have grown in recent years is attributed more to their situation within the commuter belt of the West Midlands Conurbation than to any other factor. Certain villages on the urban fringe, however, such as Admaston, Broseley and Lilleshall, have been under expansion pressure from the local area.

COMMUNICATIONS.

The Road System.

3.72 In the Study Area the present main traffic flows are along axes:

a. East/west on the A.5 which joins M.6 15 miles to the east.

b. West on the A.5, and south east on the A.464.

c. South west/north east on A. 518.

d. North west/south east on the A. 442 between Madeley and Wellington through Dawley.

3.73 Several other roads carry traffic in a north/south direction, but these do not constitute suitable routes along which the traffic may cross the combined physical barrier formed by the A.5 and the Shrewsbury/Wolverhampton railway line.

3.74 The present capacity, traffic conditions and physical characteristics of the existing classified roads are summarised in Appendix B. Without exception it can be observed that those roads carrying the present main traffic flows are already loaded near the limit of their capacity during peak periods, and they will be incapable of carrying the increased traffic which will be generated by the proposed development of Dawley New Town.

3.75 New high capacity routes are required to achieve a satisfactory level of movement between communities and work places currently in existence. The problems of securing a satisfactory communication network are intensified by mineral workings and the waste therefrom, the highly fragmented urban pattern which has resulted from these, and other man-made barriers such as the A.5 and the railway. As with the A.5 By-pass, now under consideration, essentially new alignments are required through both developed and undeveloped areas.

Rail Facilities.

3.76 Rail facilities which are intended to remain in the Dawley/Wellington/Oakengates Area are as follows:

a. Passenger and freight services along the Wolverhampton/Oakengates/Wellington/Shrewsbury line.

b. Special coal services to Iron Bridge Power Station along the Madeley Junction/Buildwas line.

c. The branch line to Donnington and Granville Colliery, forming part of the Wellington/Newport/Stafford line.

3.77 Local passenger services operate between Shrewsbury and Wolverhampton at roughly hourly intervals. Long distance services now operating between Birkenhead and Shrewsbury and London stop at Wellington. In future, when the electrification of the London/Wolverhampton line is completed, these will virtually cease, change being made at Wolverhampton.

3.78 The stations at Wellington and Oakengates are used daily by approximately 2,600 and 830 passengers respectively. The existing facilities are capable of handling many more than this.

3.79 Freight is handled at Wellington, in full wagon loads only, at the rate of about 150 tons per day. The facilities have a capacity to handle up to 400 tons per day, and this could be increased to 650 tons per day with only moderate additional expenditure. Parcel and freight traffic of less than full wagon loads is handled through Shrewsbury and distributed by road from there. British Rail are confident that they could cater for increased traffic of this nature, either through Shrewsbury or elsewhere.

3.80 Mention should also be made of the existence of branch lines and abandoned formations which British Rail intend to dispose of in the near future. Of these the Ketley Junction/Lightmoor Branch still retains its track, whereas the Coalport/Wellington line, the Iron Bridge/Bridgnorth line and the Stirchlsy Branch line retain their formation only.

Bus Facilities.

3.81 Omnibus stage services in the Study Area are operated by Midland Red and by private companies of the Shropshire Omnibus Association. Most of these services radiate from Wellington, and, in addition, to those connecting the major centres, regular services operate both within the area and into adjoining rural districts.

Waterways.

3.82 The Area was once served by a network of canals, now derelict, of which the Newport/Shrewsbury branch of the Shropshire Union Canal is the best preserved. The River Severn is now commercially navigable only as far as Stourport, 25 miles downstream, to which the tonnage conveyed has declined over recent years.

Air Transport.

3.83 The nearest existing commercial airfield is at Birmingham (35 miles away) which will be able to handle all types of aircraft, with possibly some weight restriction, when the runway extension is completed next year. Wolverhampton (14 miles away) and Bobbington, near Bridgnorth, (12 miles to the south east) are used by light executive aircraft. Military airfields in the area include Cosford (8 miles away to the east) which is still in use, and High Ercall (7 miles away to the north east) now disused and with runways up to 4,750 feet.

POPULATION CHANGES IN
STUDY AREA 1951-1961

TABLE 1

Local Authority	Population		Change 1951-61	
	1951	1961	Nos.	%
* Dawley U. D.	8,380	9,558	1,178	14. 1
Oakengates U. D.	11,656	12,163	507	4. 3
Wellington U. D.	11,416	13,654	2,238	19. 6
* Wenlock M. B.	15,095	14,935	- 160	- 1. 1
Atcham R. D. parishes of Wroxeter Uppington Leighton Sheinton Buildwas	1,864	1,559	- 305	- 16. 0
* Shifnal R. D. parishes of Sheriffhales Shifnal Stirchley Kemberton Sutton Maddock	4,998	5,273	275	5.5
* Wellington R. D. parishes of Wrockwardine Longdon Eyton Preston Hadley Wellington Rural Kynnersley Lilleshall	17,631	19,924	2,293	13. 0
	71,040	77,066	6,026	8. 5

Source - Census of Population.

* On 1st April 1966 a new Dawley Urban District was created with a boundary closely approximating to the existing Dawley Designated Area. As a result of this parts of Wenlock M. B., Wellington R. D. and Shifnal R. D. were included in the new Urban District and the remainder of Wenlock M. B. was included in Bridgnorth R. D. and Wellington R. D.

POPULATION.

3.84 In 1961, the Study Area had a population of 77,000, 8.5% more than 1951, a rate of growth very similar to the average for the West Midlands Region of 8.2%. A substantial proportion of the increase was the result of immigration from elsewhere. Three-fifths of the growth was in the north western section of the Study Area, in Wellington U.D., and in some parts of Wellington R.D., which in 1961 contained 31% of the Area's population. A further fifth of the increase was in Dawley U.D., and most of the rest was in Oakengates U.D., and in Lilleshall Parish to the north of it. The population of the various Local Authority Areas, and the 1951-1961 changes are shown in Table 1.

AGE AND SEX STRUCTURE 1961 *

TABLE 2

Age Group	Study Area			% of total population		
	Males	Females	Total	Study Area	Salop	England & Wales
0-4	3,095	2,957	6,052	7.9	7.8	7.8
5-9	3,008	2,841	5,849	7.6	7.4	7.1
10-14	3,409	3,263	6,672	8.7	8.4	8.1
15-19	3,063	2.851	5,914	7.7	8.4	6.9
20-24	2,998	2,456	5,454	7.1	6.6	6.2
25-29	2,463	2,298	4,761	6.2	6.1	6.2
30-34	2,617	2,423	5,040	6.5	6.5	6.5
35-39	2,750	2,787	5,537	7.2	6.9	7.0
40-44	2,495	2,587	5,082	6.6	6.3	6.6
45-49	2,709	2.551	5,260	6.8	6.6	7.0
50-54	2,752	2,457	5,209	6.8	6.5	7.0
55-59	2,421	2,341	4,762	6.2	6.1	6.3
60-64	1,830	1,871	3,701	4.8	5.1	5.3
65-69	1,292	1,589	2,881	3.7	4.1	4.3
70-75	937	1,211	2,148	2.8	3.2	3.3
75+	1,072	1,672	2,744	3.6	4.2	4.3
Total	38,911	38,155	77,066			

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* Special tabulations of Census material carried out by the West Midlands Political and Social Research Unit at Birmingham University enabled exact age and sex distribution figures to be worked out for the Study Area - the published figures relate only to whole Local Authority Areas.

3. 85 Between 1961 and 1964 the population continued to increase at a high rate, with some appreciable immigration. The age structure in 1961 was similar to that of the County of Shropshire except that there were proportionately fewer people over the age of 60 and somewhat greater proportions in most younger age groups. Both the Study Area and the County population had a considerably greater proportion of young people under 25 than the national average, as Table 2 shows. This factor points to a faster than average rate of population growth in the Study Area in the future.

EMPLOYMENT.

3. 86 Employment in the Study Area has increased rapidly in recent years, the growth between 1953 and 1964 in the Iron Bridge, Oakengates and Wellington Employment Exchange Areas being some 24%, more than twice the rate for Great Britain as a whole.

3. 87 During the same period there has been a marked change in the structure of employment. In the primary sector (agriculture, mining and quarrying) it has been declining, though more slowly than in the Region or the country as a whole, while in the manufacturing, construction and service sectors it has been increasing more rapidly than in either the Region or the country. This growth has been the result of the establishment of much new industry and rapid expansion by some established firms. The relative growth of the three main sectors is illustrated in Figure 3.

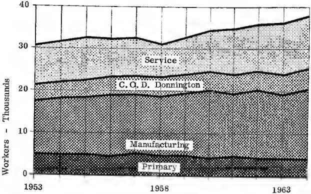
3. 88 At present the Area is largely dependent on manufacturing. Figure 4 compares the proportions in the main sectors with those in the West Midlands and Great Britain. The Area has a long tradition of metal working and structural engineering upon which has been developed a range of newer industries, including particularly the major motor component plant of Joseph Sankey & Sons Ltd.

3. 89 Employment in primary industry, however, represents a higher proportion than in the Region or the country. There is a considerable amount of farming, some coal mining, and clay, sand, gravel and roadstone quarrying.

3. 90 The proportion of people employed in the service sector is relatively low especially if the construction force engaged at Iron Bridge Power Station and the employees of Donnington Ordnance Depot are discounted. This suggests some dependence on services provided at Wolverhampton, Shrewsbury and Birmingham.

DISTRIBUTION OF EMPLOYMENT
BY MAIN SECTORS - 1953-1964

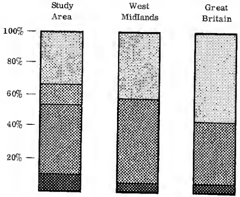
FIGURE 3



Wellington, Oakengates, Iron Bridge
Labour Exchange Areas

DISTRIBUTION OF EMPLOYMENT - 1963
Percentages by Main Sectors.

FIGURE 4



Source: Ministry of Labour

3.91 As the long established industries generally employ only small numbers of women there has been an unusually large pool of available female labour upon which the newer industries have drawn. Between 1953 and 1964 the female employment in manufacturing rose by nearly 50%. In addition there was a substantial increase in the employment of women on industrial type work at the Donnington Ordnance Depot, and female employment benefited from the general growth in the service sector. Over this period the number of women working increased by 38%, but even so the female activity rate remains below the national average, allowing for differences in age structure. In 1961 it was 14% less than the national average, and the 1961-64 growth in female employment, though substantial, was not sufficient to offset the shortfall. Although this may have been partly caused by demographic factors, like different family spacing patterns, and by the fact that the Area includes some rural districts, it would appear that there was still a slight reserve of female labour.

3.92 Most of the manufacturing industry is now situated around Dawley and Oakengates and in the area between Oakengates and Wellington. Wellington, however, has over half the area's employment in services (after excluding the Ordnance Depot).

SHOPPING.

3.93 A preliminary assessment of the shopping pattern within the Area's three Urban Districts, and based on the Board of Trade Census of Distribution is set out in Table 5 below, broken down into two main categories:

Convenience Goods:	those bought regularly, and frequently. They are measured by the turnover in food shops, confectioners, tobacconists and newsagents.
Durable Goods:	those usually bought less frequently, and where choice is more important. They are measured by the turnover in clothing shops, furniture and household goods stores, department and variety stores.

DISTRIBUTION OF RETAIL
TRADE AT 1961 (£ million)

TABLE 5

	Convenience	Durable	Total
Wellington	1.6	1.9	3.5
Oakengates	1.1	0.5	1.6
Dawley	0.6	0.2	0.8

Note: Figures partly estimated.

3.94 This confirms that Wellington is the most important shopping centre. Not only does it have the highest turnover in each category, it has a particularly high percentage of the Area's trade in durable goods. This suggests that it draws in shoppers from other parts of the Area who wish to take advantage of the choice it offers for these goods. Its role as a centre offering other services, particulary for the agricultural market, benefits it in this way. A Salop County Council survey of the town indicated that retailing in the town's central area used a total floor space of 348,000 square feet in 1963. Although the County's figures are not exactly comparable with the Board of Trade's, this would indicate that the trade achieves a very low turnover per square foot and may reflect the fact that much of the floor space is there to meet peak demands, especially on market days, while it is relatively underutilised during the remainder of the week.

3.95 Oakengates and Dawley are smaller centres, mainly serving the daily needs of their surrounding populations. Other centres at Iron Bridge, Madeley, Ketley, Hadley and Donnington also function as convenience centres for their local populations. The centre at Madeley is near the initial housing and industrial developments being carried out by the Dawley Development Corporation, and is to be expanded.

3.96 Although it is difficult to make a precise estimate of the trade of these smaller centres, some indication can be obtained by examining the figures for their respective local authority areas and counting the number of shops. Overall it would appear that trade in the area per head of the population is well below the average for the country. Although this could be partly caused by difference in income and expenditure patterns, it seems that there is a nett 'export' of spending power to shops outside, probably in Shrewsbury and Wolverhampton.

PUBLIC UTILITIES AND DRAINAGE.

Public Utilities.

3.97 The appropriate Statutory Undertakers anticipate no undue difficulty in providing adequate supplies of water, gas and electricity, nor in affording telephone service, although the scale of expansion is such that major rearrangements of mains and other fixed equipment will be necessary in every case.

Drainage.

3.98 Drainage factors are of crucial importance both to the present situation and the requirements of potential growth, therefore, both aspects are discussed in this appreciation. Map 8 should be read in this context.

Drainage Feasibility - Surface Water.

3.99 To the north of the watershed the surface water drainage of the Weald Moors is by a two level system, partly natural and partly created during land reclamation and now administered by the Strine Internal Drainage Board. The gradients of the various watercourses are very slack, so that silting occurs in dry periods, and in wet periods there is some flooding. Although some improvements are envisaged to overcome present difficulties it will not be possible to allow the volume of water in the system to be increased by the run off from major new development.

3.100 To deal with this run off a new interceptor must be constructed from the Tern below Longdon eastwards towards Donnington to relieve the various streams flowing northwards from the urban area. The feasible line for this interceptor has the effect of limiting development to a strip of land about a mile wide north of Wellington, narrowing gradually to Donnington.

3.101 South of the watershed surface water drains to the River Severn, and to its tributary, the River Worfe. Generally changes in run off due to development will not create any great difficulty, although it will be necessary to construct a system of valley sewers and balancing reservoirs, to regulate flows in streams and to improve watercourses of the River Worfe system. Where such works can be combined with recreation facilities, the implications for social advantage are obvious.

Drainage Feasibility - Foul Drainage.

3.102 The problems posed by foul drainage are related to the physical form of the area in that, as for surface water, there are two separate catchment areas. Over the years sewage disposal facilities have been provided by the various local authorities to meet the demands of the sporadic development which has taken place, so that now there are ten disposal works in operation, of which two, Donnington (Wellington R. D. C.) and Trench Farm (Oakengates U. D. C.), now being extended, are not overloaded.

3.103 In the northern catchment the Wellington R. D. C. Works at Donnington can take a very limited increase in flows, but cannot be physically expanded because it is sited within the Ordnance Depot. The Oakengates U. D. C. Works at Trench Farm are being constructed to have design capacity to serve 16,000 people, while the population now served has already reached 15,000.

3.104 Valid outline planning permissions exist for a considerable area of land, which, if it were to be fully developed, could house upwards of 12,000 people. Of these about 8,500 would be in the area served by the Works at Trench Farm which could thus be overloaded by almost 50% at an early date. Of the other permissions, houses for about 4,000 people have been approved in Wellington, Hadley and Ketley, where they would drain to Dothill and Hadley Park Works, both of which are overloaded, although Dothill Works are being extended to give some additional capacity.

3.105 In October 1964, Wellington U. D. C., Wellington R. D. C., and Atcham R. D. C. jointly instructed Consultant Engineers to study the problems of sewage disposal created by the expanding population in their areas. The Consultants recommended that treatment facilities should be jointly provided and that the optimum location for the new Works was at Rushmoor on the River Tern. The proposed siting of this Works is such that it could also serve Oakengates U. D., but the Council for that District decided not to participate in the scheme and proceeded with the extension of their own Works at Trench Farm.

3.106 The construction of the Rushmoor Works was proposed in two phases, the first to provide flow treatment for the sewage from a population of about 19,000 and sludge treatment for 30,000. The final scheme would serve a population of 43,000.

3.107 Land is available for these Works to be built to serve a much larger population. The approximate location of the site is optimum to suit any new development in the northern catchment, including Oakengates, though further consideration of siting and method of treatment would be required. A gravity sewer north of the built up area could replace all the existing disposal works and drain development in the area up to the new surface water interceptor.

3.108 A new Works at Rushmoor could be commissioned by about 1972, so that this is the earliest date by which extensive new housing areas could be occupied. The siting of the Works and the cost of laying main sewers clearly imply that early development must take place to the north and west of Wellington, further expansion taking place eastwards.

3.109 In the southern catchment the most modern Disposal Works is that at Cuckoo Oak. This Works, now operated by Dawley U. D. C., is being extended on a temporary basis to assist the first stage of development planned by the Dawley Development Corporation at Sutton Hill.

3 110 The Coalport Works has been designed to treat sewage from the whole of the Dawley New Town Area and is expected to be operational in 1969. This site is adequate to permit a larger Works to be built capable of accepting, in addition, sewage from Broseley, Little Wenlock, Shifnal and the area between Dawley and Shifnal, up to a total of 150,000 to 180,000 people. Sewage disposal is not, therefore, a significant factor in deciding the location of additional development in the southern catchment, although the capital expenditure involved in sewer laying may influence its phasing.

4. IMPLICATIONS OF EXPANSION

4.1 We must now examine what is implied by the scale of growth contemplated in the Minister's Terms of Reference and its achievement in the time period of 15 years. What does it mean in terms of people, of houses, jobs and new industry ? What conditions must be met in its planning and what benefits will be conferred on the people who already live in the Area ?

POPULATION GROWTH.

4.2 Our Brief requires the examination of the problems of accommodating the immigrants and their descendents, and also the natural increase of the existing population. Because it is not possible to project natural increase with long-term accuracy, we have prepared projections on a high/low basis, to allow for possible variations in certain key demographic factors discussed in Appendix C. For planning purposes, in examining the capacity of the Area we have taken the higher projections (which are actually close to the Registrar General's current forecasts).

4.3 For comparison, estimates were made of population growth on a slower immigration assumption (100,000 immigrants by 1991), as well as at the immigration rate proposed in the Terms of Reference. The phasing of immigration under the two assumptions was derived from postulated housing programmes (allowing for a fairly gradual initial build up and final tailing off) and for this reason the totals do not add up to exactly 100,000. The immigration programmes assumed in our first projections were as follows:

PHASING OF
IMMIGRANT POPULATION
thousands

TABLE 6.

	Fast Immigration	Slow Immigration
1966-70	17.1	14.8
1971-75	41.8	24.7
1976-80	35.7	24.7
1981-85	7.7	24.7
1986-90	-	12.3
Total	102.3	101.2

GROWTH OF POPULATION IN DAWLEY/WELLINGTON/OAKENGATES URBAN AREA

TABLE 7.

	15 year immigration period		25 year immigration period	
	High	Low	High	Low
1965.				
Existing Population (estimated)	68,500	68,500	68,500	68,500
1981.				
Existing Population plus natural increase	83,000	77,000	83,000	77,000
Immigrants plus natural increase	119,800	110,100	81,500	75,000
Total	202,800	187,100	164,500	152,000
1991.				
Existing Population plus natural increase	92,200	80,500	92,200	80,500
Immigrants plus natural increase	150,100	132,800	142,500	127,400
Total	242,300	213,300	234,700	207,900
2001.				
Existing Population plus natural increase	104,100	84,600	104,100	84,600
Immigrants plus natural increase	179,500	148,100	169,500	142,800
Total	283,600	232,700	273,600	227,400

4.4 Some unplanned immigration into the area has been taking place, and allowance for that to date is made in our estimates. For the purposes of our first projections we have assumed that from 1966 all nett immigration, whether under the selection scheme or independent of it, is included in the immigration programme as set out above.

4.5 It was assumed that the age/sex structure of immigrants into the Dawley/Wellington/Oakengates Area would he similar to that of immigrants into the earlier London New Towns, except that allowance was made for a greater proportion of elderly people. This was stipulated partly in order to enable more elderly people to live near their married children.

4.6 The projections have been carried on to the end of the century. There will be considerable population growth, if only from natural increase, after the migration period, and any sensible plan must take this into account. Initial projections were made for the Study Area and have subsequently been adjusted to a smaller urban area approximating to the area now proposed for development. The results, for both fast and slow migrations and on high and low natural increase assumptions, are set out in Table 7.

Households.

4.7 Estimates were made of the number of private households at various stages in the future. The method used was basically that developed by A. H. Walkden (Population Studies, November 1961) where rates of headships of households are applied to the numbers projected for each age group. The results for the fast rate of immigration are indicated below:

NUMBER OF HOUSEHOLDS (DEVELOPMENT AREA)
High and Low Population Assumptions TABLE 8

1971	30,000	-	30,000
1981	57,000	-	58,000
1991	69,000	-	72,000
2001	80,000	-	88,000

4.8 It can be seen that the main increase in the number of households occurs between 1971 and 1981. During this decade there will be 27,000-28,000 extra households in the Area. In the following decades the number of households will increase by about 15,000 per decade on the high natural increase assumption or about 12,000 per decade on the lower assumption.

EMPLOYMENT GROWTH.

4.9 In order to assess future employment needs in the Study Area and the requirements for meeting them, separate projections were made of (i) working population - that is, demand for jobs from residents in the Area, and (ii) demand for workers in those employment categories that grow as a consequence of population expansion, in some close and calculable relationship. The balance of jobs would have to be met by employment in industries that are not closely dependant on local demand (in practice, these are mostly primary and manufacturing industries) and, if growth in these is not sufficient, by increased travel to work outside the Area. Part of this balance would be filled by the industries already established in the Area. An examination of the potential growth of these has been carried out, as described later, although exact estimates are not feasible because expectations are based on hypotheses about external factors that are uncertain at this stage.

4.10 The working population was estimated from the demographic projections, taking account of the likely activity rates in the different age/sex groups. Very marked quinquennial increases would occur under the fast migration rate, especially during the main migration period as Table 9 shows.

WORKING POPULATION IN THE STUDY AREA * - Rapid Growth (thousands) TABLE 9.

	1971	1976	1981	1986	1991	2001
High Population Assumptions.						
Total Working Population	47	69	89	100	111	129
Five year increase	9	22	20	11	11	18
Low Population Assumptions.						
Total Working Population	47	69	88	97	105	115
Five year increase	9	22	19	9	8	10

* Figures in this Table do not take full account of actual migration into the Area between 1961 and 1966, for which approximate adjustments were made in Table 7. The total working population figures are therefore slight under-estimates, although the quinquennial estimates would not be much affected.

4.11 Projections were made of future employment in 'locally orientated' industries (those dependent mainly on local demand, that is, principally service industries). The initial estimates were obtained by means of coefficients relating employment in the different industries to the size of the local population, allowance being made for changes over time in these coefficients on the basis of trends in the country as a whole and in the Region. Further adjustments were made to allow for town size, the lags in the growth of certain industries that tend to occur in rapid New Town expansions, and the actual present employment structure and other factors peculiar to the Study Area. It may be expected that in the early stages of growth considerable reliance will be placed on Birmingham, Wolverhampton and Shrewsbury for the provision of services, thus maintaining the local pattern which exists at present. With further growth reliance on these external centres will diminish and the influences of the New Town will become more predominant until, at maturity, a completely new pattern will have evolved.

4.12 Maturity should have been reached by the end of the century, at which time characteristics associated with town size (reaction lags, dominance of early growth sectors and so on) should have been eliminated.

4.13 Our estimates show locally orientated industries as providing a markedly increasing proportion of the total employment. On high population assumptions the proportion of total employment (excluding 'unclassified' workers - see para 4.14) in this category would rise from 28% in 1961 to 58% in 1981 and considerably higher in later years.

4.14 The estimates of locally orientated employment do not include self-employed people or certain classes of National Government employees, who are not included in the annual series of employment statistics. From an examination of trends in the country as a whole, estimates could be made of the proportion these workers would form of total working population. Account was also taken of special local factors, such as the Ordnance Depot. The resultant estimates of these 'unclassified' workers cover all industries and include a certain number not connected with locally orientated industries. (There is thus an implicit assumption about the growth of other industries, but this affects the estimates only to a small extent).

4.15 Employment projections were worked out for both the high and low population forecasts. Table 10 shows the resultant estimates for locally orientated and 'unclassified' workers, and also shows the balance to be filled by other industries and, if necessary, by travel to work elsewhere. The results shown, of course, need to be treated with extreme caution and the more long term the projections the less reliance can be placed upon them. They do serve, however, as a reasonable basis on which to make some judgements as to the implications of the proposed programme of development.

EMPLOYMENT ESTIMATES.
Rapid Growth - (thousands) TABLE 10.

	1971	1976	1981	1986	1991	2001
High Population Assumptions.						
Locally orientated industries	16	27	39	46	51	65
'Unclassified' Workers	3	5	6	7	7	8
Total of above	19	32	45	53	58	73
Working Population Projection	47	69	89	100	111	129
Balance *	28	37	44	47	53	56
Low Population Assumptions.						
Locally orientated industries	15	26	36	42	45	53
'Unclassified' Workers	3	4	6	6	7	7
Total of above	18	30	42	48	52	60
Working Population Projection	47	69	88	97	105	115
Balance *	29	39	46	49	53	55

* Employment in other local industries (principally primary and manufacturing) and nett outward travel to work.

4.16 With regard to existing employers that are not locally orientated (amounting, broadly , to those in primary and manufacturing industries, plus the Ordnance Depot), assessments of growth potential were made on the basis of past trends in the Area, adjusted in the light of information received from firms and other relevant organisations and of expected national trends. It is clear that local manufacturing firms will maintain a substantial rate of growth in employment (subject, of course, to official policy), and can, therefore, be expected to absorb a considerable number of the incoming workers. However, even on the most optimistic assumptions, their employment will fall far short of requirements if all, or nearly all resident workers are to be employed within the Area.

4.17 Some of the most important conclusions which can be drawn from our examination of employment requirements are as follows:

a. A substantial inflow of new manufacturing industry will be required, if the fast rate of immigration is to be achieved without heavy reliance on the Conurbation for employment. The main brunt will be between 1971 and 1976, when we would estimate that between 7,000 and 10,000 new jobs might be required, over and above the growth of employment by service industries and existing employers in other industries.

b. The position is much eased if we assume that the immigrant intake is spread over a longer period. Two factors account for this. First, there will not be such a peak of population intake, and, second, firms who move into the Area in the early period will be established and probably continuing to expand at such a rate that later immigrants can be taken up in greater volume by these industries. In all, the difficulties associated with the expansion programme would be less pronounced under the slower migration intake, especially as the assumptions relating to service industry growth must inevitably be uncertain and may have been too optimistic. On our slow migration assumption, (migration period extended to 1991), the intake of new manufacturing industry would probably be less than one half of the number quoted above.

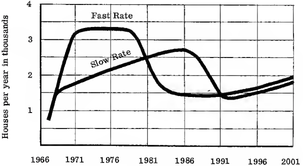
4.18 In summary, the rate of build up of new jobs that will be required is quite without precedent in previous New Towns in this country. In the early period the position might be partly relieved by some nett outward commuting of workers. However, the Area is probably too far from the Conurbation for substantial commuting to be a feasible solution.

HOUSING PROGRAMME AND OTHER NEEDS.

Housing.

4.19 The total rise in population between 1966 and 1981 will require in the order of 37,000 dwellings, added to which approximately 3,000 dwellings from the existing housing stock may require to be replaced over the period. (see Appendix D). The resultant total of about 40,000 dwellings will require a construction programme which must achieve and sustain an average production of 3,200-3,300 dwellings a year between 1971 and 1978, thereafter declining to meet the needs of natural growth.

COMPARISON OF HOUSE CONSTRUCTION RATES FOR FAST AND SLOW INTAKES FIGURE 11.



4.20 The first two years of the programme, 1966/1968, will be based on Dawley New Town's agreed construction programme for the Continuity Area grouped around Madeley, where two new housing areas at Sutton Hill (now under construction) and Woodside are to be developed.

4.21 Thereafter, the programme will have to be accelerated sharply to a peak which will be nearly three times the rate previously considered feasible by the Dawley Development Corporation for the New Town building programme, (1,200 dwellings per annum), and nearly four times the average rate in the local area over the last four years, (about 900 dwellings per annum).

4.22 The size of the programme demands that several quite large building contracts must run concurrently on virgin sites. Contract phasing must take maximum advantage and make the most economic use of new roads and services, thus being a factor of primary influence in the phasing of the expansion.

Other Needs.

4.23 Dwelling construction however, is only part of the total programme, and must obviously go on side by side with the build up of supporting facilities and provisions. Taking the fifteen year period our estimates show that, amongst others, the following needs will be significant:

a. Education - twenty-eight new primary schools are required, after 1971 at the rate of nearly three a year. Eleven new comprehensive schools will have to be completed at the rate of one a year after 1972. Facilities for further education will also be a substantial item.

b. Industry - approximately 2.6 million square feet of factory space will be required, in addition to office space and service employment facilities.

c. Shopping - about three quarters of a million square feet of new shopping space will be required, while some of the existing facilities will also need reconstruction.

d. Social Services - a new hospital will be an early priority, besides the range of other social services for which the County Council is normally the responsible authority.

4. 24 The phasing of these and other needs will be considered in depth in the next stage of the Study, but the above short summary emphasises the burden of responsibility that will fall not only on the Developing Agency, but also the contributing authorities in carrying out this programme.

INFLUENCES UPON DESIGN.

4. 25 We turn now to consideration of the influences which will bear upon design, and help determine the urban form and character of the expansion. Firstly, trends emergent in our society must be recognised and evaluated; they must then be reconciled in a way which provides the conditions for their proper environmental fulfillment. We must take as our basis the maxim that with growth of income and personal mobility, and increase of leisure, demand will move towards more spacious living conditions.

Mobility and Urban Form.

4. 26 The growth of car ownership confers a degree of personal mobility never before enjoyed and is exerting the most profound effects on settlement pattern in the acceptance of longer journeys for work and leisure. The aim of the majority of people is to own a car and, given free choice and the road space, to use it for most journeys. At the same time the facility to use other transport means must be given, thereby to create a condition of balance between public and private transport.

4. 27 This implies the need to devise a plan structure which provides the basic conditions for balance and argues against adopting a radial or concentric form where, as in existing cities, convergent movements congest the centre.

4. 28 Instead, a form of directional or linear growth is indicated, within which key attraction areas like central area uses and industry are interspersed with living areas, thus encouraging a more even distribution of movement over the transportation network.

4. 29 Within such a pattern major traffic movements would be directed away from the living areas, thus securing the best conditions for the residential environment. For the working

areas progressive technology has made it less important for industry to be isolated from other development, but the size of industrial areas and the peak travel movements generated by them remains a key factor of influence on the transportation pattern.

4 30 In existing cities the major focus of attraction lies in the central area where many diverse and related facilities are concentrated together, shopping being the most significant element in a city of this size Some of these activities could, without deprivation, be dispersed to other locations leading to economies in road design and a more balanced distribution of movement.

4. 31 This is not to suggest that the concept of a city centre as such is no longer viable - certain uses will always require a dominant central position, the larger stores, luxury shops, main local government administration, commercial offices and cultural and entertainment facilities. Location is an important factor Moreover, where an existing nucleus is available in a location reasonably central to the future development pattern, many arguments can be brought to favour the expansion of that nucleus into the dominant centre, providing the scale of expansion can be accepted. Where these conditions are not favourable it will be necessary to encourage the establishment of a completely new centre in the best location.

Leisure.

4. 32 Increased time for leisure is leading to greater participation in outdoor pursuits on land and water, but is tending to smaller group or individual activities, some of which have greater space demands than traditional team games Greater mobility is also breaking down the old barrier between town and country, creating pressure on the use of land in rural areas and in the Green Belt around our cities. Regional recreation areas or parks would go some way to fulfilling this need and diverting pressure away from the valuable agricultural land.

The need for flexibility.

4. 33 Because we live in an age of technological achievement and rapid change, any plan for urban growth must be sufficiently flexible to accept changing standards from phase to phase in order that it can be re-orientated whenever necessary. As we have said earlier, our projections for demographic and economic growth are concerned to give the range of probability. They are not finite, and for the longer term are fraught with

uncertainty. Similarly patterns of social and leisure relationships which are formulated in the structure of the plan will be subject to change and evolution.

4.34 In defining a framework that will allow opportunity for change within the plan period we must also look further ahead and attempt to indicate the directions in which future growth could lie, and in planning for this ensure that nothing is done in the shorter term to prejudice these possibilities.

URBAN LAND USE NEEDS.

4.35 The area of land required for the additional population of 130,000 is assessed at approximately 10,250 acres, made up as follows:

LAND NEEDS FOR
130,000 POPULATION TABLE 12.

	Acres
Residential Area @ 40 ppa.	3,250
Industry @ 30 wpa.	1,000
Central Area and District Centres	400
Open space @ 12 acres per 1,000 (including 600 acres to make good existing deficiency)	2,200
Education	700
Major Roads, including landscaping	2,000
Miscellaneous uses - Hospital, utilities and other service provisions	700
	10,250

4.36 In this assessment the existing urban area is excluded, but allowance is made to remedy existing deficiencies in open space provision, and major roads. Industrial land, based upon a gross density of 30 workers per acre, is required for 30,000 workers. This includes for workers in new industry, in expanding existing firms, in existing firms needing new sites and for approximately 7,000 workers in the service sector who would work in new industrial areas.

EXPANSION BENEFITS

4 37 The scale of growth proposed will broadly treble the existing population, raising the existing scatter of communities to the status of a considerable city. Among the benefits that will be conferred are:

a. Established social and commercial facilities provide a ready basis upon which new growth can depend in the early stages of development but the demands of the incoming population will bring a wider and more varied range of services in which the existing communities can share

b. Existing environmental deficiencies will be redeemed and made good at a faster rate than would otherwise be possible.

c. Increased demand for living space and recreational enjoyment will hasten the redemption of areas of derelict industry and mining spoil and put these areas to profitable use.

d. Stimulus will also be brought to bear on the conservation of the valuable Severn Gorge Area and the preservation of the historic industrial remains

e The critical position of drainage throughout practically the whole of the Area requires the implementation of an overall drainage policy which can be achieved more economically through the benefit of major expansion.

f. The maximum effect of these benefits will be conferred by the integration of new and old development as part of a complementary process.

5. SUMMARY OF PHYSICAL RESTRAINTS.

5.1 Map 9 is a screen of the factors imposing restraint on the achievement of rapid growth. Mining, drainage feasibility and agriculture are the most significant, whilst existing urban use, paucity of communications and landscape boundaries are slightly less so.

Mining Conditions.

5.2 Time and cost penalties are imposed by the incidence of shallow mining and tips in the west of Dawley Designated Area, and at Ketley, Oakengates and Donnington Wood.

5.3 Past, present and potential open pit workings in the west of Dawley Designated Area, Little Wenlock and Broseley rule out any early major development of these areas, though the western area may become available in the post 1981 term.

5.4 Future deep mining from Granville Colliery will inhibit development north east of Oakengates and waste disposal from this Colliery is likely to sterilise part of Donnington Wood for many years.

Drainage - Surface Water.

5.5 Limitations on development north of Wellington and Oakengates are mainly imposed by the need to construct a new surface water interceptor connecting direct to the Tern to prevent further surcharge of the Weald Moors drainage system. The line of this interceptor is somewhat north of the possible gravity sewer line. The construction of both facilities will logically proceed eastwards from the discharge point near the Tern and consequently influence the phasing of development.

5.6 In the rest of the area, the surface water run off must be controlled by balancing reservoirs, except where it is possible to discharge direct to the Severn.

Drainage - Foul.

5.7 No major development is possible anywhere in the area without new sewage disposal works.

5.8 There are two optimum sites for sewage purification works - at Rushmoor and Coalport. Both Works should proceed in any case to meet present needs.

5.9 Based on these Works there are two main gravity catchments (shown on Maps 8 and 9). One system of sewers would serve the existing urban area and the area north of Wellington/Oakengates, draining to Rushmoor. The other would serve the land south of the watershed, draining to Coalport.

Other Services.

5.10 The only limitation imposed by other services is the difficulty of providing water supply to parts of Donnington and Oakengates. This reinforces the restraint in those areas already imposed by mining condition and drainage feasibility.

Agriculture.

5.11 The highest agricultural quality occurs in the area south of Shifnal and should preclude any development. Comparison of land north and west of Wellington with that immediately east of Dawley Designated Area shows that the former is generally of higher value.

Communications.

5.12 Generally, development on the eastern side is more favourable to rapid early growth, being well related to the existing main links with the Conurbation, A.5 and A.464. New high facility routes are, in any case, a high priority due to the need to secure continuation of the Dawley New Town programme.

5.13 Development north and west of Wellington will demand the improvement of communications through the existing urban area and the construction of the A.5 By-pass at the earliest possible date.

5.14 To the west and south of Dawley, the existing roads are inadequate to support growth of any magnitude. Moreover, because of mining conditions, available land is limited to a series of scattered pockets which would entail uneconomic lengths of road to service them. In addition, development around Broseley would require a major bridge facility over the Severn.

Urban Area.

5.15 Within Wellington and Oakengates practically the only potential building land available is in the areas for which planning permission has been given and which must be considered in context with the need for rehabilitation and renewal of the existing settlement pattern.

Visual Restraints.

5.16 On the east there are two strong topographical boundaries for development: one running north/south through Nedge Hill on the edge of the Dawley Designated Area, and one, two miles to the east, on the Wolverhampton side of Shifnal where the proposed Green Belt Boundary is drawn. This latter boundary continues around the north of Shifnal, north west to Redhill on the A. 5 forming a natural bowl.

5.17 In the north of the area there are no strong visual boundaries, but on the west there is the Wrekin, and further west the ridge running from Overley Hill to Wrockwardine from which development should be precluded. The bowl between these two ridges could take some development, but it is considered that the area between the A. 5 and the Wrekin should remain open.

Ground Slope.

5.18 Solely on factors of ground slope, the least impedence to rapid development is offered by the level land north of Wellington. Land in the east, around Stirchley, or further east is more broken with varying slopes.

Summary.

5.19 Thus, on purely negative grounds the choice of land for rapid growth is limited to:

a. the eastern part of Dawley Designated Area.

b. north and west of Wellington.

c. east of Dawley Designated Area towards Shifnal.

However, the urgency of securing the most economic scheme of sewage disposal for the existing urban area, and the capacity given by the Dawley Designated Area, removes the need for large scale expansion into (c) above.

5.20 Slower growth, which must also accept higher penalties in timing, cost and land rehabilitation is possible in:

a. the western part of Dawley Designated Area.

b. land to the west of Dawley Designated Area, around Little Wenlock.

6. PATTERN OF DEVELOPMENT

General Considerations.

6.1 It will be clear that opportunities for rapid development within the Area are very strongly determined by the restraints inherent in the site and the need to provide the most feasible pattern of drainage. The combination of these restraints imposes a dispersed pattern of growth, but this is a positive rather than a negative influence on design. It has led to the evolution of an urban form capable of realising the planning objectives discussed in Chapter 4.

6.2 This, of course, is no more than a framework, the foundation of a future pattern of living which can only be realised in physical development terms. The town must be viable in the social, as well as the economic sense, fundamentally attractive to people of diverse social and cultural backgrounds. The difficulties inherent in the site are more than balanced by its basic advantages, the enduring qualities of the landscape setting and its historic associations.

General Form.

6.3 The outline proposals, which are shown on Map 10 together with the proposed Development Boundary, should be read essentially as a statement of general planning principles which, subject to adjustment, will be refined into the Draft Basic Plan in the second stage of our Study.

6.4 The elements of the new urban pattern are arranged along major transportation corridors, with residential areas planned in linked form and interspersed with employment zones. This arrangement affords the opportunity to minimise the journey to work and create optimum conditions for public transport.

6.5 The continuity proposals of Dawley New Town, centred on Madeley, form the base of a 'U' shaped development extending northwards up to Priorslee on the eastern side and to Ketley on the west. Opportunity may occur in the future, probably beyond the build up period, for the extension of the eastern arm up to Donnington.

6.6 Development to the north and west of Wellington is proposed on the basis of a loop system with a new industrial area and Wellington Centre at opposing ends.

6.7 The communities of the existing urban area which lie between the new growth areas will be subject to selective improvement and renewal. The broad objective must be to bring the existing and the new growth areas together within one overall planning concept, because in the course of time, they will undoubtedly function as one integrated social and economic unit. Besides the renewal of outworn housing and the reclamation of derelict areas of land, the improvement and relief to the road system, by the construction of new roads within the urban area, will be imperative. These tasks require extreme care and sensitivity in their execution and may not prove practicable of total achievement within the build up period.

Population Distribution.

6.8 Table 13 shows the distribution of population within new and existing areas at the completion of the build up period. The numbers are, of course, provisional at this stage of our Study, but we have concluded that the greater part of the immigrant intake of 100,000 people should be housed within the existing Designated Area of Dawley, and the balance primarily to the north and west of Wellington and east of Oakengates.

DISTRIBUTION OF POPULATION
(Provisional)

TABLE 13.

	Immigrant Population	Total Growth in new areas
Dawley Designated Area and Eastern Extension	64,000	81,000
Wellington/Oakengates Area	36,000	42,000
	100,000	123,000
ADD		
Population in existing and redeveloped areas, including planning permissions		80,000
		203,000

Transportation.

6.9 The backbone of the transportation corridors would be the major road system which would become the primary link with the hinterland and cater for longer local journeys. Access to this system would be by well spaced grade separated interchanges to permit free flow of traffic. The major system would be supported by, and linked to, a secondary limited access system intended mainly to cater for the shorter local journey. Both elements, in larger part, require to be on new routes. Access to properties would be given from purely local roads, the length of which would be limited to control the volume of traffic.

6.10 The overall transportation system will be designed to cope with the full range of travel demand generated by the community at the time car ownership has reached relative saturation. This does not mean however, that the system would necessarily provide for the unrestricted use of the motor car; for economic reasons there may have to be some limitation in central areas.

6.11 In the early stages of development a large segment of the population will rely upon public transport for most of its journeys, but at the end of the development stage a smaller part of the total population will remain dependent upon this mode. However, we consider that an attractive public transport system is essential to the proper function of the community - it is a necessary public service and must be maintained whether or not it is viable as an independent facility.

6.12 The concept of a road system as outlined above permits consideration of a public transport facility which remains attractive for specific types of journeys. Such a facility, operating on its own right of way at both the generating and attracting ends of journeys, would promote the highest order of convenience in new areas. In older areas, or where direct or rapid routes could be established, rubber tyred public transport would utilise the road system.

Shopping and Central Facilities.

6.13 In our approach to determining the probable distribution of shopping and allied facilities, account has to be taken of the physical arrangement of development, the movement pattern, and the way in which the existing centres could continue to make their contribution.

6.14 For the element of daily shopping we are satisfied that a pattern of district centres can be developed to meet this need, in combination with smaller locally sited facilities within the residential areas. The higher and more selective element of demand must, however, be met in the major centre, located in a position convenient to the movement pattern, and having the capacity for expansion in phase with the continuing growth of the town.

6.15 In making a choice of location, many factors have to be considered. In any situation the issues to be examined are complex. They are easier to resolve if a major centre already exists in a favourable position. Here the existing main centre, Wellington, is relatively well sited to the existing settlement pattern, and its rural hinterland, but not so to the new development. It is in need of renewal, and has, in some measure, the capacity for expansion, but not to the scale of demand that we are considering. Oakengates, on the other hand is slightly better off in terms of geographical situation, but as we have noted earlier it is limited in capacity and quite difficult problems of topography and access would have to be overcome. Neither centre, therefore, is particularly well sited either on locational or access grounds, though both have the capacity for improvement and for a moderate increase in size without destruction of their present identity and character.

6.16 Whilst, therefore, we have no doubt that a new main centre in a fairly central position - located to the south of A.5 - would be the most successful ultimate solution, its growth could be seriously handicapped unless certain conditions are met:

a. The phasing of roads, public transport access and residential areas should be arranged to establish it as a district centre as rapidly as possible.

b. In the planning of other centres, the new district centres of the expansion and the existing centres that will be redeveloped, the overall long term policy must always be borne in mind, and over development of the existing centres avoided.

c. Major magnets, such as some of the multiple stores should be encouraged to set up in the new centre rather than in existing ones, and the authorities should themselves assist in the early growth of the centre by the establishment of new Local Government Offices and other local service facilities.

Industry.

6.17 New industrial areas indicated in the plan include the completion of the Halesfield site, of which the first part will be required for the Dawley Continuity Programme, and the development of new areas at Priorslee, to the north of Admaston and at Lightmoor. The Priorslee site is located on the eastern edge of the development adjoining the main regional communications to the Conurbation. All these sites can be served from existing rail facilities. Existing industries having potential for growth will require particular attention, and in the case of certain industries the amount of expansion that is possible may become critical on traffic generation grounds. The provision of adequate road linkages, amongst other needs, will be an urgent consideration.

Housing.

6.18 In the residential areas there will be scope for a wide range of housing from high density groups to detached houses, and in the early years of the build up period the predominant demand will be from expanding families needing a house and garden. Local open space, children's play facilities and the provision of a high level of car ownership and garaging will also make high demands for space.

Open Use.

6.19 An integral part of the plan would be the open space use in which playing fields and existing woodlands and water features would form recreation networks running between the urban elements of the plan. These would link the urban heart (formed by the town park, retained from the earlier Dawley Plan) with the Wrekin and the Severn Gorge. The latter features could constitute the western end of a regional linear park, based on the Severn, which we discuss in Chapter 8.

Civil Airfield.

6.20 The former Royal Air Force Station at High Ercall is well sited to serve as an airfield for light executive and commercial aircraft. Whilst it is to be disposed of by public auction in the near future, we recommend that the runway system and control buildings should be kept until a firm decision on their future can be taken.

University.

6.21 The founding of a new University could do much to secure balanced social growth. We suggest that a site should be considered in the lee of the Wrekin where the phasing of its development after ground restoration is completed, could accord well with the emergence of such a use.

RECOMMENDED DEVELOPMENT AREA.

6.22 The recommended Development Area is defined on Map 10. In addition to the present Dawley Designated Area, two further areas are indicated; one immediately north of the present Designated Area embracing Wellington and Oakengates comprising about 12,300 acres, and another forming a small extension on the eastern side of the Dawley Designated Area of about 210 acres. These two areas added to the existing Designated Area of 9,170 acres gives a total of about 21,680 acres. A detailed description of the proposed boundary is given in Appendix E.

6.23 The arguments justifying the inclusion of certain areas are given below:

a. Eastern Extension of Dawley Designated Area - the land between the proposed Dawley primary road running beside the railway feed to Iron Bridge Power Station, and the present Designated Area Boundary, is narrow and subject to steep gradients in certain parts. We consider that the small extension indicated on Map 10 will assist more economic use of new road facilities by allowing a more balanced distribution of population on either side. The extension is predominantly on the western slope of the higher land forming the visual boundary between Dawley and Shifnal with the exception of Nedge Hill itself which should not be built upon.

b. Land south of the A. 5 By-pass around the Ercall - the prospect of the Ercall Wrekin Hills from A. 5 is of outstanding scenic value and should be maintained. Some land south of the A. 5 By-pass may be required for playing field provision. The area is already within the Wellington U. D. boundary.

c. Land to the west of Wellington between A. 5 and the main railway line - this area includes the village of Wrockwardine which will have to be carefully related to proposed urban development

COMPARISON OF EXISTING
AND PROPOSED LAND USE

TABLE 14.

	1966				1981
	Dawley Designated Area	Proposed Development Area	Extension to Designated Area	Total	Total Area
+ Urban Use	1,500	4,100	-	5,600	16,000
+ Land affected by mining conditions	2,950	1,450	-	4,400	1,200
Landslip	500	-	-	500	500
Agricultural Use - Grade 2	100	2,900	-	3,000	900
Grade 3+	2,790	3,000	210	6,000	2,200
Grade 4+	1,050	150	-	1,200	200
Vacant - including woodland	280	700	-	980	680*
	9,170	12,300	210	21,680	21,680

+ There is considerable overlap between 'urban use', 'land affected by mining' and 'Grades 3 and 4 Agricultural land'. Urban use is measured in full, but the other categories are reduced on account of this overlap.

* This figure is major woodland only.

between the village and Wellington. The land to the south is considered suitable for recreational open use and possibly further education needs and the continuance of part of the area in agricultural use.

d. Northern section between the River Tern and Donnington - the boundary is drawn to allow implementation of new urban development around Wellington, and to include the probable site of a new sewage disposal works at Rushmoor. Land is included to facilitate the construction of new roads which will serve new housing development and industry, and relieve the congested and inadequate road conditions in the existing urban area.

e. Donnington Wood Area - this land is precluded from building development in the early term, requiring extensive reclamation and restoration by the National Coal Board as part of the Granville Colliery programme which could eventually render it suitable for urban use. A new road facility linking A. 518 and A. 5 is likely to be required during the intake period.

6.24 Table 14 compares the position existing at 1966 with the estimated land needs and uses at 1981, contained within the overall development area, including Dawley New Town. The land required for urban use will appreciate from approximately 5,600 acres to some 16,000 acres at the end of the build up period.

6.25 The gross density is computed as follows:

Estimated population at the end of the build up period
Overall Development Area

$$\frac{203,000 \text{ persons}}{21,680 \text{ acres}} = 9.36 \text{ ppa.}$$

After deduction of land remaining in agricultural use, woodlands, and land affected by mining or geological conditions, the gross density based on land utilised for predominantly urban use is

$$\frac{203,000 \text{ persons}}{16,000 \text{ acres}} = 12.69 \text{ ppa.}$$

Opportunities for Further Growth.

6.26 Beyond the build up period opportunity must be secured for the natural growth that will take place beyond the development boundaries. We recognise these to be:

a. to the west of Dawley D.A., utilising low grade agricultural land after open pit working ceases and the area is suitably restored.

b. to the east and west along the main communication system, exploiting the corridor growth principle now being considered by the West Midlands Economic Planning Council.

AGENCY.

6.27 We need not emphasise that the development programme poses a considerable and complex task. Competing and conflicting interests must be reconciled and it would seem essential to recognise that success in its achievement will depend on a very high degree of co-ordination and administrative ability. We hold the view that on administrative and implementation grounds the whole development should be considered as one entity. It will be planned as one, and in the course of time will function as one. The best chances of success would lie in the establishment of one primary development agency to administer the whole of the programme, within which the existing authorities will make their contribution.

7. CONDITIONS FOR RAPID GROWTH

7.1 In Chapter 4 we have discussed the implications of the very high rate of population growth. We have shown that this rate of growth sets very demanding requirements, especially as regards intake of new industry and the rate of construction. It is necessary to examine very carefully the problems revealed, to consider how they can be overcome, and indeed whether they may set a limit to the feasible rate of expansion.

7.2 To resolve these matters it is not sufficient to concentrate on the Dawley/Wellington/Oakengates Area and its particular circumstances - we have been forced to study in some depth a much wider area and much broader issues. Regarding industrial movement, the matters to be considered include the potential demand for new sites and the locational requirements of industry in the Conurbation, the implications of Government Policy for the distribution of industry and the relative advantages of the different overspill reception areas in the Region.

7.3 Again, for a proper assessment of construction possibilities it is necessary to consider the total load, now and in the future, on the building industry in the Region as a whole, the growth of the industry's capacity and the competing demands of different areas in the Region.

7.4 An examination of questions such as these is now proceeding and a conclusion on the rate of growth will be reached before the stage of detailed preparation of a Basic Plan and programme of development. In this we are very conscious that the achievement of a fast rate of population intake is vital for the Region. Meanwhile, we can put forward some conditions and pre-requisites which we regard as necessary for rapid expansion in the area.

The attraction of New Industry.

7.5 New industry moving into the area, it is intended, should be mainly from the Conurbation. The movements might be actual transfers of complete establishments (in some cases ones that were 'non-conforming' in their previous locations), or they might take the form of new branches of expanding firms.

7.6 Movements from the Conurbation to other parts of the Region are estimated to have accounted for only about 20,000 manufacturing jobs between 1945 and 1963. This compares with about 100,000 jobs moved from the Region to other parts of the country under the policy of steering jobs to areas with unemployment problems (which has been applied with increasing firmness in recent years).

7.7 This past rate of intra-regional industrial movement is far less than will be needed to support the proposed dispersal of population (in the case of Dawley/Wellington/Oakengates alone we would estimate that up to 15,000 new industrial jobs will have to be brought into the area, over and above the growth of employment in local service industry and existing primary and manufacturing industry). However, as the West Midlands Study points out, in the past years there were few alternative locations in the Region to attract firms, and there was less physical pressure on firms to move. Under present proposals there would be a much wider and more attractive range of overspill reception areas. The potential amount of new industry for overspill areas, therefore, would seem to depend very much on Government policy for the movement of industry.

7.8 The Dawley/Wellington/Oakengates Area, of course, is only one among a number of proposed overspill reception areas in the Region, and it is therefore important to consider how it compares as a location for industry. Briefly, the main points that firms seeking new sites are likely to consider, and the degree to which Dawley/Wellington/Oakengates compares favourably or unfavourably are as follows:

a. Factory Sites - there is no reason to think that adequate sites cannot be provided as cheaply in the Dawley/Wellington/Oakengates Area as in alternative areas; moreover, land is available for sizeable industrial estates, which have several advantages over a scatter of smaller estates.

b. Local Market - we are here concerned with industries which have some choice of location and not with 'locally orientated' industries which are tied to an immediately local market; certain industries, however, seek sites relatively near large concentrations of population, such as the Conurbation, and Dawley/Wellington/Oakengates would seem to be slightly less well placed in this respect than certain other overspill reception areas.

c. Distance - from customers, suppliers, other branches of the same firm, or main transhipment points (especially ports); firms moving to overspill areas are likely to have their main links, whether as customers or suppliers, with the Conurbation, or perhaps more distant places. In relation to Birmingham and the east (including London), Dawley/Wellington/Oakengates would seem to be slightly less well placed, but it is better situated for movement to and from the west of the Conurbation, the North West (including the Port of Liverpool) and South Wales. The effect of distance, of course, depends partly on the adequacy of communications, which we discuss below.

d. Transportation and Communications - the Dawley/Wellington/Oakengates Area lies on the main Shrewsbury/Birmingham railway line, and on the A. 5 trunk road, while the M. 6 motorway passes only 15 miles away with no substantial urbanised area intervening. The Area is thus quite well situated in relation to main transport routes, though it will have to be considered whether A. 5, and A. 464 under present improvement proposals will be sufficient as a main road link with M. 6 and the Conurbation. Consideration may also have to be given to maintaining through rail services between Dawley/Wellington/Oakengates and Birmingham which, under present plans, will virtually cease when the Birmingham/Liverpool line is electrified.

e. Labour Force - the existing work force in Dawley/Wellington/Oakengates is comparatively small and the range of skills and qualifications available is relatively restricted at present. As the area is probably too far away to draw to a sufficient extent on the Conurbation's work force, it it is likely to be at some disadvantage in this respect in the early years, and firms moving in will bring their key workers with them.

f. Technical Services, etc. - firms moving to overspill reception areas will at first have to rely mainly on the Conurbation or other main towns for technical services and supporting industry, (e.g. sub-contractors). Dealings between firms and these services often involve frequent personal contacts, and from this point of view Dawley/Wellington/Oakengates may be at some disadvantage in comparison with areas nearer the main industrial centres. With good communications, however, this disadvantage would be minimised.

g. Amenities - in selecting a new location firms will consider the range of housing available for staff they may wish to transfer to their new establishment, and will also look at the general environment and the standard and range of amenities in the area. As regards housing, the stock in Dawley/Wellington/Oakengates can be raised to the necessary standards by appropriate planning of the future housing programme. To increase the appeal of the area for industrialists it will be essential to provide a wide range of housing, including houses for senior executive and managerial staff. The Area is in good countryside, relatively close to Wales, and is quite attractive. Although it is rather distant from Birmingham, the Region's main shopping, cultural and entertainment centre, it is reasonably close to Wolverhampton. The large scale development proposed, affords the opportunity of creating a convenient and attractive place to live.

7.9 To sum up, the Dawley/Wellington/Oakengates Area is a suitable location for most types of industry from major existing centres in the Region (we would anticipate that West Midlands firms seeking new locations would be very largely in or connected with the metal working and engineering industries, including the vehicles industry) but other proposed overspill reception areas may in some respects have marginally greater attractions for industrialists. We would suggest that if the Dawley/Wellington/Oakengates Area is to play its part in a policy of industrial dispersal in the Region, the following conditions should be met:

a. Government Policy on the movement of industry should be reasonably flexible. A strict enforcement of the policy of steering all possible new industrial development to less prosperous regions may not be compatible with the proposals for intra-regional dispersal of population and employment. In addition, it may be necessary to give some preference to the Dawley/Wellington/Oakengates Area over other more immediately popular reception areas, during the earlier years of development until a continuing momentum of growth has been established.

b. As soon as requirements can be assessed there should be no delay in improving the main road links with the Conurbation.

c. The selection policy for migrants should take full account of the different skills and qualifications required by existing and incoming industry.

d. Plans for residential areas should cater, within reason, for a variety of demand.

e. It should be made clear and actively promoted from the beginning, that the intention is to create a large and thriving town with, eventually, a main centre containing a full range of facilities and services, even though for more day-to-day requirements there will be a more dispersed and convenient pattern of centres than in existing large towns.

Construction Requirements.

7.10 In Chapter 4 we have referred to the demands of the programme required by the fast intake. The size and speed of the programme (housing alone requires the sustained output of 3,200-3,300 dwellings a year over the peak intake period) will require the replacement of conventional arrangements, by procedures which allow industrialised techniques of building to be harnessed to the full. They should afford opportunity for early collaboration with contractors to ensure adequate pre-contract planning, and may require the incentive of a guaranteed programme to industrialised building firms to justify the adaptation of their systems to the particular requirements of dwelling design.

7.11 It would be misleading, however, to place too much emphasis on the contribution of industrialised building - at least in the earlier phases of development. The most significant advances in both speed and economy are in the field of high rise building, and for the first five to ten years the majority of the demand is likely to be for 2-4 storey dwellings. Its application, moreover, is best suited to repetitive units, for example housing and schools, and is of less value in the case of other buildings of a more complex and specialist nature needed elsewhere in the building programme.

7.12 Responsibility for the overall direction of the programme will, of course, rest with the Development Agency, but its execution will inevitably call upon other skilled technical and design resources besides those of the Development Agency. Contributions from other organisations, large and small, public and private will be needed to help share the burden and also bring in freshness and variety of design.

Construction Force.

7.13 During the peak years of the building programme, 1971-1978, we estimate that a labour force in the order of 5,000-6,000 operatives will be required on new building works in the Area. It is clear that this demand will not be met from local resources. Much of the labour must be imported from elsewhere, most probably from the West Midlands Conurbation since that is the nearest primary source of labour for construction work.

7.14 It is probable, and perhaps inescapable, that this source of labour will be under heavy demand in the same period for other work, both for re-construction in the Conurbation and in expansion schemes nearer to it. These will be closer to the motorway system, and by comparison Dawley/Wellington/Oakengates will be at some relative disadvantage in the time taken for travelling.

7.15 In this context; unless there are startling improvements in technology resulting in a greater rate of growth than at present forecast, it would seem inevitable that a system of priorities will be needed to ensure that resources are used to the best advantage. These would suggest:

a. High early priority for the housing of the constructional work force to overcome difficulties in transport and to help to offset Dawley's relative geographical disadvantage to other growth areas.

b. Some supression of demand in the areas where labour is at present living, and possibly Government action to secure the needed distribution of labour.

c. The widespread adoption of building consortia and long term contracting methods.

7.16 Our interim view is that if these conditions cannot be met then Dawley/Wellington/Oakengates contribution to the West Midlands overspill problem will inevitably have to extend over a longer period than that contemplated in our Terms of Reference.

8. COMPLEMENTARY PLANNING POLICIES

The function of Shrewsbury in the West Midlands Region.

8.1 In order to complete Stage II of our Study an early decision is required on the future role that Shrewsbury will play in the Region, bearing in mind the recommendation in the West Midlands Study that there were possibilities of building up, in the longer term, a new regional centre based on Shrewsbury and Dawley designed to facilitate an eventually faster rate of westward dispersal. Study of this possibility should proceed as a matter of urgency so that assumptions may be formulated on the way in which the services of these two settlements could be complementary and inter-acting. Account must also be taken of the effect of any decision on the proposals recently published for the new town in Mid-Wales.

HINTERLAND POLICIES.

8.2 Inevitably, the scale of growth contemplated in Dawley/ Wellington/Oakengates will produce a transformed situation in the surrounding area and the hinterland settlements will become increasingly influenced by the attraction of its expanding employment opportunities and services. Likewise, because of their intrinsic character as pleasant country towns, they will be under pressure to expand for they will present to some the opportunity for residence outside the development boundary. Shifnal in particular will be under pressure on account of its situation on the main road and rail communications with the Conurbation.

8.3 Shropshire County Council have proposed a broad policy for this rural hinterland, based on the earlier proposals for Dawley New Town. In general, apart from proposing limited growth in certain settlements, these were directed to maintaining the present functional balance with agriculture and to conserve intrinsic character and architectural quality. These policies will again require review in consequence of the larger scale growth, and it should also be considered what benefits this expansion, and the parallel and inter-acting growth of Shrewsbury, could bring to the more rural settlements in the west of the County, where there has been marked depopulation and deprivation of services over recent years.

8.4 It will be observed that our boundary proposals are drawn fairly tightly around the land required for the 1981 population.

However, the probable effect of a fast rate of expansion, coupled with the high population assumption, will be to produce a dynamic for further considerable growth, reaching towards 300,000 by the end of this century. It will be essential, therefore, to recognise and confirm the direction which future growth should take, by the safeguarding of adequate communication corridors and the control of land critical for further expansion. Close liaison between the Development Agency and the County Council will be needed to determine the best ways of dealing with these issues.

RECREATION POTENTIAL.

8.5 Besides the safeguarding of areas for potential further growth, complementary policies are needed to ensure that the recreational needs of the people living both within the town and the sub-region are adequately met. Concentration of growth in Dawley, Wellington and Oakengates will inevitably create pressure on the surrounding countryside, and unless appropriate measures are taken the rural areas will be slowly eroded of their character and charm.

8.6 The Area of Outstanding Natural Beauty around the Wrekin and Wenlock Edge is preserved for the enjoyment of its intrinsic beauty, and for the same reason the Severn Valley, from Cressage to Bridgnorth, still largely unspoiled, invites preservation combined with more active recreation. The abandoned railway line from Bridgnorth to Shrewsbury, with a branch line to Much Wenlock, runs through some of the finest river scenery, not easy of alternative access. It would make an ideal route for walking or riding, or alternatively the operations of a railway preservation society. At the centre, and in the heart of the Severn Gorge, there is the opportunity to create the finest open air museum of industrial archæology, and bring urgent and needed stimulus to the preservation of Dawley's historic remains.

8.7 We recommend that the whole of this area from Cressage to Bridgnorth, including the part now protected, be considered for development as a linear park for active recreation in the context of the West Midlands Region. Policies should be formulated as a joint exercise between the authorities concerned, and the studies of the Severn Gorge Area, now being undertaken by Dawley Development Corporation, will make a valuable contribution to this work.

FUTURE MINING.

8.8 The mining problems have been discussed in Chapter 3. A policy should be agreed and implemented for future open pit extraction and restoration in the area between the Wrekin and Dawley Designated Area to safeguard the possibility of future expansion into this area. Likewise it will be necessary to consider the possible conflict between future urban expansion eastwards in the area south of the A. 5 and future coal mining from Granville Colliery.

DRAINAGE POLICIES.

8. 9 The construction of the major disposal works at Coalport and Rushmoor will, besides serving the needs of expansion, offer the opportunity to rationalise the present pattern of sewage disposal elsewhere in the area, and lead to overall economies in the course of time. Emphasis must, however, be placed on the urgency of constructing the main disposal works as a pre-requisite of expansion, and the speedy implementation of the ancillary works necessary, including the surface water interceptor which for the most part lies beyond the northern development boundary and may require special powers for its construction.

APPENDIX A

EXTRACT FROM THE MEMORANDUM
by the Minister of Housing and Local Government
on the Terms of Reference for the Consultants.

One recommendation in the West Midlands Study was that the Wellington/Oakengates Area should be expanded to take, by 1981, about 50,000 overspill from the Birmingham Conurbation. That recommendation will be considered by the Government in the light of economic circumstances and priorities.

Meanwhile, the Minister of Housing and Local Government has appointed the consultants John H.D. Madin and Partners, to carry out a two stage study, on the assumption that 50,000 people will be introduced into Wellington/Oakengates in addition to the 50,000 who are to move into Dawley.

The consultants will be asked to recommend to the Minister an appropriate area founded on Wellington/Oakengates for further development in conjunction with development of the existing Dawley New Town, and to prepare an overall plan for whatever development may be decided upon in these areas.

In preparing the overall plan it will be open to the consultants to recommend populations in excess of, or fewer than, those defined above and to make recommendations on the distribution of the population. The plan is to be flexible in order to cope with changes in conditioning features such as population intake, natural growth, transport and communication development, regional and sub-regional influences, industrial, commercial and economic trends and likely evolution in the employment pattern.

The consultants will seek to achieve in their overall plan cohesion between existing communities but this does not mean that the plan must necessarily focus upon one centre or be based upon the hitherto conventional structure for a large urban area.

The consultants will take fully into account local needs, including natural population increases and they will prepare a broad appraisal of urban renewal requirements from which studies in depth can follow.

Particular attention in the overall plan will be paid to the provision of a public transport system, segregation of vehicles and pedestrians and the exclusion of through traffic from environmental areas. The location of industrial and business sites so as to achieve a distribution of employment centres and a balance of peak traffic flows will be studied. Linking of the urban transport system to through routes will also be important.

Development under the plan will be phased and the programme will, in broad terms, be costed. In preparing the programme, the consultants will bear in mind the use of industrialised building methods and the need to maintain viability through all stages of development.

Throughout their assignment the consultants will maintain close liaison with the Ministry and, in so far as the existing New Town is concerned, with the Development Corporation.

The consultants will be instructed to consult fully with Government Departments, Shropshire County Council and with all those local councils whose districts are likely to be concerned.

The consultants will advise the Ministry and the Development Corporation at a very early stage on what areas can be developed in the New Town over the next four years without prejudice to the overall plan.

CONDITIONS AND CAPACITIES OF LOCAL ROADS.

A. 5 Trunk Road.

The A. 5, Watling Street, runs east/west through the Study Area passing on the southern edge of Wellington and diverting from the straight line of the old Roman Road by a loop south of Oakengates. Outside the urban area the vertical and horizontal alignment of the single two-lane carriageway is generally good and its design capacity as a rural road is about 6,000 p.c.u's per 16 hour day. Counts taken in August 1965 indicated daily volumes of about 8,400 p.c.u's east of Oakengates, and 11,800 p.c.u's west of Wellington.

Between Oakengates and Wellington the A. 5 remains a single two-lane carriageway and passes through a continuous built up area from which there is frequent access. Traffic flow is controlled by signals at two locations and practical capacity is about 8,000 urban p.c.u's per day. In August 1965 traffic counted was about double this figure indicating the congestion experienced, while through traffic between Wellington and Oakengates was assessed at about 8,000 p.c.u's per day.

The overloading of the A. 5 in this area is recognised and it is planned to commence the construction of a new road to by-pass the built up area to the south about 1970. Analysis of traffic indicates the need to separate local from through traffic and to provide extra capacity for both.

A. 464 Trunk Road.

The A. 464 which has a single two-lane carriageway joins the A. 5 south east of Oakengates and runs in a south easterly direction through Shifnal to Wolverhampton. Its design capacity as a rural road is 6,000 p.c.u's per day. Volumes of almost this magnitude were observed in August 1961 between A. 5 and Shifnal.

A. 442.

The A. 442 passes through the Study Area in a north west/south east direction with a single two-lane carriageway and crosses the A. 5 in Wellington at a signal controlled intersection. North west of Wellington and south of Cuckoo Oak, where the vertical and horizontal alignment is fair, the design capacity as a rural road is 6,000 p. c. u's per day.

In August 1961 traffic volumes of about 4,900 p. c. u's per day were observed south east of Wellington. In Dawley where there is uncontrolled access, the road is narrow and winding. Here, in 1965, volumes of 860 urban p. c. u's per hour were observed. Such volumes are approaching the limits of the road's capacity.

A. 518.

The A. 518 which has a single two-lane carriageway, runs from Wellington in a north easterly direction to Newport and on to Stafford. Between Wellington and Donnington the road passes through urban development from which access is unlimited, and for a mile from its signal controlled junction with A. 5 the horizontal alignment is poor. In Hadley headroom is restricted by a rail bridge to 13' 6". In August 1961 traffic counts taken just north of the junction with A. 5 suggested that even then the road had little reserve capacity.

B. 4373.

The B. 4373 has a single two-lane carriageway giving a rural design capacity of about 6,000 p. c. u's per day. It runs from Lawley to Coalbrookdale where the horizontal alignment is poor and gradients are steep. At Woodside headroom is limited to 12' 10" by a rail bridge.

B. 4379.

The B. 4379 which has a single two-lane carriageway, runs from Shifnal in a south westerly direction to Sutton Maddock. The horizontal and vertical alignment is generally reasonable and as a rural road its design capacity is about 6,000 p. c. u's per day.

B. 4380.

The B. 4380 which has a single two-lane carriageway runs east/west through Iron Bridge and Madeley. West of Iron Bridge it runs alongside the River Severn and its design capacity is about 6, 000 p. c. u's per day. Between Iron Bridge and Madeley it passes through urban development where its capacity is restricted by unlimited access, poor horizontal and vertical alignment and reduced width. In addition there is a steep gradient out of the Severn Gorge. It crosses the A. 442 at Cuckoo Oak and east of this point again assumes the character of a rural road with a design capacity of 6, 000 p. c. u's per day.

B. 4378.

The B. 4378 which has a single two-lane carriageway, runs from the B. 4380 west of Iron Bridge across the River Severn in a southerly direction to Much Wenlock and onwards to the south west. As a rural road it has a design capacity of about 6, 000 p. c. u's per day.

B. 4373.

The B. 4373 which has a single two-lane carriageway runs from Iron Bridge across the River Severn to Bridgnorth. Between Iron Bridge and Broseley severe limitations on traffic are imposed by the river bridge which has only one carriageway, and a weight limit of 12 tons. On both sides of the river the road climbs out of the Severn Gorge on a steep gradient with sharp hairpin bends.

B. 5060.

The B. 5060 has a single two-lane carriageway and runs in a north/south direction joining the A. 5 on the Oakengates By-pass to the A. 518 at New Donnington. This road is restricted only in the area of Oakengates near its crossing with the B. 5406, the original A. 5 before the Oakengates By-pass was constructed.

APPENDIX C

POPULATION FORECASTS.

This Appendix sets out the assumptions made and outlines the method used in forecasting population.

A model was devised to enable a range of values to be set to probable population growth, which would show the range of alternatives for which the planning process would have to allow.

Past trends in what are regarded as the key demographic variables - mean number of live births per marriage, age at marriage, family spacing, mortality rates - were studied, and realistic upper and lower limits estimated for each. The model was then worked through using the 'low' fertility factors in combination with the 'high' mortality rates to arrive at the minimum likely population growth, the low projection. Similarly, the 'high' fertility rates were combined with the 'low' mortality rates to determine a maximum likely population growth, the 'high' projection.

The considerations affecting the key demographic variables were as follows:

a. Live Births per Marriage - The Registrar General produces forecasts of the mean ultimate family size (number of children) for the section of the population marrying each year. For the 1962 cohort, he estimated that the figure will be between 2.34 and 2.68. There is, however, an upward trend in the forecast of the upper limit and so 2.30 and 2.80 was adopted as a realistic range for 1970 and beyond.

b. Family Spacing - An analysis was carried out of the cumulative births in marriages of different durations for each year between 1948 and 1961, 'standardising' the number of marriages per year, and apportioning the number of births according to the duration of the marriage. Cumulative values were calculated for each of the fourteen years and the highest and lowest, converted into percentage terms, used in the projections.

TOTAL MARRIAGE FERTILITY
BY MARRIAGE DURATION

TABLE 15.

Marriage Duration (completed years)	Percentage of total marriage fertility * High Assumption	Low Assumption
0-4	36.43	34.22
5-9	38.18	36.50
10-14	16.54	17.75
15-19	6.72	8.07
20-24	1.93	2.89
25-29	0.20	0.57
	100.0	100 0

* Converted to non-cumulative basis.

c. Age at Marriage - For the 'high' projection it was assumed that there would be a continuation of the trend to earlier marriage until 1971, and also a reduction in the proportion of women who remain unmarried to 5.5%. For the 'low' projection it was assumed that the trend to earlier marriage will cease and that 6.1% of the female population will remain single. The table lists the proportion of females who marry at specified ages. In the case of the 'low' projection these factors apply to all women born since 1951, in the 'high' projection, to those born since 1956. For women born earlier, the rates were varied slightly in accordance with known data.

AGE AT MARRIAGE (Females)

TABLE 16.

Age at end of five year period	Proportion marrying during 5 year period (per 10,000) High	Low
15-19	880	663
20-24	5,750	5,180
25-29	2,270	2,691
30-34	441	597
35-39	69	153
40-44	30	92
45-49	10	13
	9,450	9,389

d. Mortality Rates - For both projections it was assumed that death rates would be reduced, a greater fall being postulated for the 'high' projection, (i.e. on low death rate assumptions). Tables 17 & 18 list the 5 year rate based on the 1960-62 statistics with the falls that have been assumed to have taken place by 2001. For intervening years the rates were interpolated.

MORTALITY RATES - MALE
in 5 year period per 10,000

TABLE 17.

Age at start of 5 year period	'High' Mortality Assumption			'Low' Mortality Assumption		
	1960-1962 Rate *	% decline by 2001	1996-2001 Rate	1960-1962 Rate *	% decline by 2001	1996-2001 Rate
Born during period	260	30	182	260	70	78
0-4	77	30	54	77	70	23
5-9	23	30	16	23	60	9
10-14	33	30	23	33	60	13
15-19	50	30	35	50	60	20
20-24	53	30	37	53	60	21
25-29	55	30	39	55	60	22
30-34	77	25	58	77	50	38
35-39	120	20	96	120	46	65
40-44	201	15	171	201	42	117
45-49	353	10	318	353	38	219
50-54	627	10	564	627	34	414
55-59	1,057	5	1,004	1,057	28	761
60-64	1,629	0	1,629	1,629	24	1,238
65-69	2,400	0	2,400	2,400	22	1,872
70-74	3,439	0	3,439	3,439	20	2,751
75-79	4,698	0	4,698	4,698	15	3,993
80-84	6,228	0	6,228	6,228	12	5,481
85-89	7,609	0	7,609	7,609	7	7,076
90-94	8,662	0	8,662	8,662	3	8,402
95+	9,253	0	9,253	9,253	0	9,253

* Expanded to 5 years.

MORTALITY RATES - FEMALE
in 5 year period per 10,000.

TABLE 18.

Age at start of 5 year period	'High' Mortality Assumption			'Low' Mortality Assumption		
	1960-1962 Rate *	% decline by 2001	1996-2001 Rate	1960-1962 Rate *	% decline by 2001	1996-2001 Rate
Born during period	210	30	147	210	70	63
0-4	62	30	43	62	70	19
5-9	14	30	10	14	60	6
10-14	15	30	11	15	60	6
15-19	21	30	15	21	60	8
20-24	27	30	19	27	60	11
25-29	37	30	26	37	60	15
30-34	55	30	39	55	50	27
35-39	87	25	65	87	50	43
40-44	139	25	104	139	50	70
45-49	216	20	173	216	46	117
50-54	330	20	264	330	42	191
55-59	526	15	447	526	37	331
60-64	859	15	730	859	31	593
65-69	1,418	10	1,276	1,418	25	1,064
70-74	2,315	10	2,084	2,315	17	1,921
75-79	3,609	5	3,429	3,609	12	3,176
80-84	5,196	5	4,936	5,196	8	4,780
85-89	6,919	0	6,919	6,919	5	6,573
90-94	7,923	0	7,923	7,923	2	7,765
95+	8,848	0	8,848	8,848	0	8,848

* Expanded to 5 years.

Other Factors.

a. Illegitimate Births - It was assumed that the ratio of illegitimate to legitimate births would be 6.35:100.

b. Sex at Birth - Since the War, the ratio of live births of males and females has remained remarkably static at 106:100, and this has been adopted throughout our calculations.

c. Age-Sex Structure of Population - Details of the age-sex structure of the population living in the Study Area in 1961 were available, but it was necessary to postulate these for the population that would migrate into the area. The best information available was on London New Towns, and the age-sex structure of their immigrants was adopted, with one modification. The Brief asked for allowance to be made for an above-average proportion of elderly people, as it was felt that there is a social need for elderly people to be near their children. A draft housing programme, was therefore postulated with certain proportions of new housing allocated to elderly migrants in order to ensure that when migration finishes approximately 15% of the population should be over 55. It was found that this proportion could be approximately attained by introducing 6,000 extra migrants from the three age groups 55-59, 60-64 and 65-69, to conform to the London New Towns age-sex structure as set out in Table 19

AGE-SEX DISTRIBUTION
OF MIGRANTS (per 10,000)
(Age at date of migration)

TABLE 19.

Age Group	Male	Female	Total
0-4	733	691	1,424
5-9	433	410	843
10-14	307	288	595
15-19	202	215	417
20-24	625	816	1,441
25-29	786	984	1,770
30-34	536	512	1,048
35-39	423	397	820
40-44	255	188	443
45-49	178	129	307
50-54	142	119	261
55-59	92	96	188
60-64	49	69	118
65-69	53	63	116
70-74	43	53	96
75-79	23	43	66
80-84	7	23	30
85-89	7	10	17
90+	-	-	-
Total	4,894	5,106	10,000

APPENDIX D

AGE OF DWELLINGS.

The age of the existing housing stock within the potential Development Area, including Dawley New Town is summarised in Table 20.

AGE OF HOUSING STOCK AS AT 1965

TABLE 20.

	Wellington U.D.	Wellington R.D.	Oakengates U.D.	Dawley D.A.	Combined Areas
Numbers					
Pre 1881	350	580	1,010	2,750	4,690
1881-1925	425	375	705	225	1,730
1925-1943	590	1,450	360	1,220	3,620
1943-1965	3,000	2,095	2,290	2,820	10,205
Total Dwellings	4,365	4,500	4,365	7,015	20,245
Percentages					
Pre 1881	8.0	13.0	23.0	39.2	23.2
1881-1925	9.6	8.3	16.2	3.2	8.5
1925-1943	13.4	32.2	8.4	17.4	17.9
1943-1965	69.0	46.5	52.4	40.2	50.4
	100.0	100.0	100.0	100.0	100.0

It is worthy of note that 50% of the housing stock has been built post-war, but 23% is already more than 80 years old. This obsolescence is particularly significant in the Dawley Designated Area where nearly 40% of all dwellings are of this age.

By 1981 nearly 6,400 dwellings (31% of the total stock) will be more than 60 years old. It is unavoidable that many of these houses will need to be replaced or substantially improved by this time. The Local Authorities estimate that by 1981 at least 1,400 dwellings are likely to be condemned. Major developments will inevitably add to the total number so that, as a working assumption, which will be modified by a more thorough assessment later, we have taken the replacement need by 1981 as 3,000 dwellings necessitating an average building rate of 200 a year. In addition, the present rate of giving improvement grants, which has averaged about 65 a year since 1960, will have to be increased.

APPENDIX E

PROPOSED DEVELOPMENT AREA BOUNDARY.

The following is a general description of the Development Area Boundary in a clockwise direction from the north west corner of Dawley Designated Area at Arleston. In all cases where a road forms the proposed boundary, the whole of the road is included.

It is proposed that the Development Area Boundary should run along the existing Wellington Urban District Boundary westwards around the Ercall and north to the A. 5, then

west along the A. 5 to (3630. 3106),

north west towards Wrockwardine along the 'C' class road to the road from Wrockwardine to Burcot,

south west along this road and along the Leaton road to (3620. 3117),

north west along a field boundary to the Wrockwardine/Charlton road at (3618. 3120),

eastwards along this road to (3621. 3120) and then north west along field boundaries to the B. 4394 at (3617. 3126),

eastwards along B. 4394 to Cross Green and north along the minor road to the River Tern,

along the River north west to (3614. 3143) east of Marsh Green,

east along field boundaries to the 'C' class road from Alscott to Sleapford at (3621. 3142),

along this road north east to its junction with B. 5063 east of Longdon-upon-Tern,

in a straight line slightly south east to join A. 442 at (3641. 3148) and south east along this road to a cross roads (3645. 3142),

north east along the road towards Eyton-upon-the-Weald-Moors to Longpit Coppice and along the north east boundary to this Coppice,

along field boundaries south and east to the southern corner of the buildings of Eyton Farm (3651. 3139), in a straight line to Wheat Leasowes Bridge where the Trench branch of the Shropshire Union Canal is crossed by the 'C' class road from Hurleybrook to Preston-upon-the-Weald-Moors and along this road north east and east to The Humbers.

along the proposed new County District Boundary around the Ordnance Depot and east of Muxton and Lodgebank,

from Lodgebank east and south east along the access road to Granville Colliery to (3726.3121) and then around the perimeter of the pit-head buildings and south west following the access road from the Colliery to the A.5,

east along the A.5 to (3727.3109) and then south south east along field boundaries, passing on the western edge of two woods known as Wards Rough, to the 'C' class road from Haughton to the Old Woodside Colliery,

along this road in a westerly direction to (3728.3095) and along the access track past Castle Farm to the A.464 to rejoin the Boundary of Dawley Designated Area at its north east corner.

PROPOSED AMENDMENT TO DAWLEY DESIGNATED AREA.

Nedge Hill Area.

At the point where the present Dawley Designated Boundary crosses the 'C' class road running from the A.464 to Nedge Hill, the proposed Development Area Boundary would run south east along this road to its junction with the 'C' class road connecting Stirchley and Shifnal, then

west along this road to (3720.3072) and south west following field boundaries to the north of Dodmoors to (3726.3064) north east of Spring Bower,

south south west along field boundaries and crossing The Hem Brook at the eastern end of the mill pond,

south to join the'C' class road from The Hem to Stirchley,

west along this road to rejoin the existing Dawley Designated Boundary at the point where it crosses this road.

AUTHORITIES CONSULTED

Atcham Rural District Council.

Birmingham Regional Hospital Board.

Board of Trade.

Bridgnorth Borough Council.

Bridgnorth Rural District Council.

British Railways Board.

Central Electricity Generating Board.

Dawley Development Corporation.

Dawley Urban District Council.

East Shropshire Water Board.

Forestry Commission.

General Post Office.

Midlands Electricity Board.

Ministry of Agriculture, Fisheries and Food.

Ministry of Defence.

Ministry of Housing and Local Government.

Ministry of Labour.

Ministry of Public Building and Works.

Ministry of Transport.

National Building Agency.

National Coal Board.

Nature Conservancy.

Newport Urban District Council.

Oakengates Urban District Council.

Salop County Council.

Severn River Board.

Shifnal Rural District Council.

Wellington Rural District Council.

Wellington Urban District Council.

Wenlock Borough Council.

West Midlands Gas Board.

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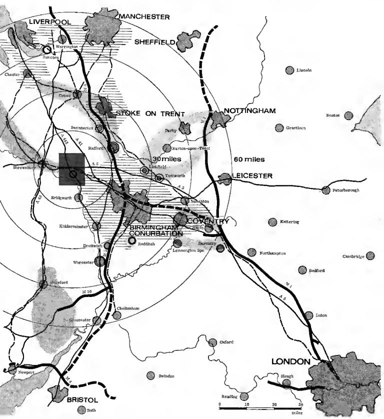
REGIONAL CONTEXT 1



▬ Motorways

▬ ▬ Proposed Motorways

— Major Roads

– – – Railways

▤ Proposed Green Belts

■ Search Area

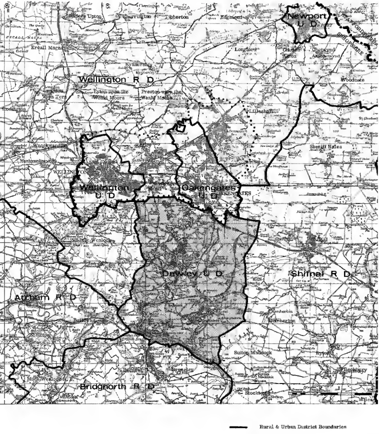
○ New Towns

● Other Expansion Schemes

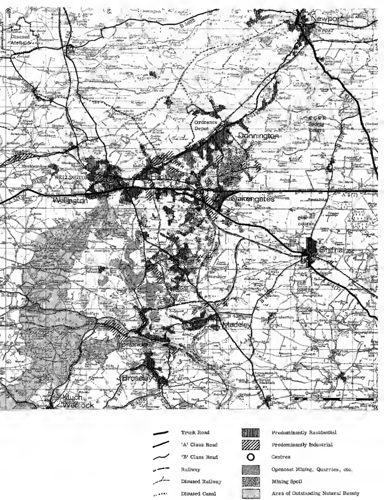
◉ West Midlands Study Expansion Proposals

▨ Growth Zones suggested for study by West Midlands Economic Planning Council

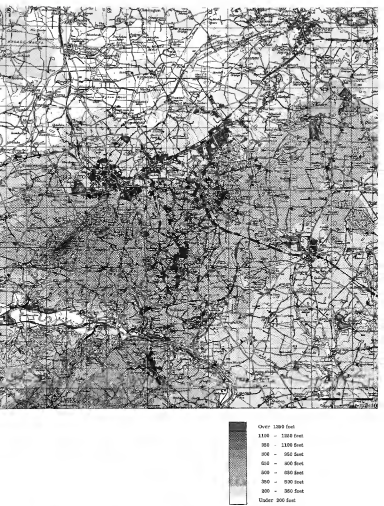
ADMINISTRATIVE AREAS 2



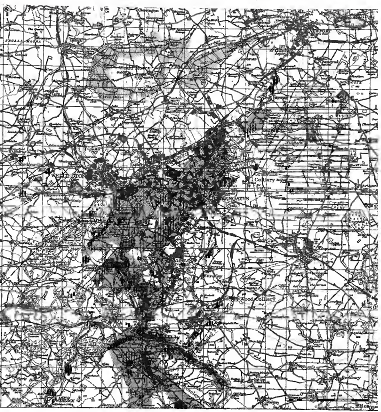
EXISTING LAND USE 3



TOPOGRAPHY 4



SUB-SURFACE RESTRAINTS 5



☰ Present Underground Mining

▒ Past Shallow Underground Mining

▥ Past Open-pit Sites Unrestored

▥ Present Open-pit Sites

▥ Possible Future Open-pit Sites

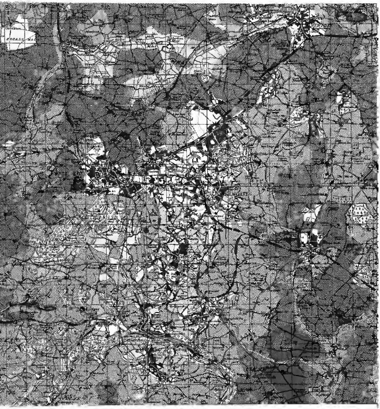
⁂ Areas liable to landslip

The grading of land shown on Map 6 opposite is as follows:

Grade 1	land with very minor, or no physical limitations to agricultural use
Grade 2	land with some minor limitations which exclude it from Grade 1
Grade 3	land of average quality with limitations due to soil, relief or climate, or to some combination of these factors which restrict the choice of crops, timing of cultivation or level of yield.
Grade 4	land with severe limitations due to adverse soils, relief or climate, or a combination of these

This map is based upon material supplied by the Regional Office of the Ministry of Agriculture, Fisheries and Food and is provisional

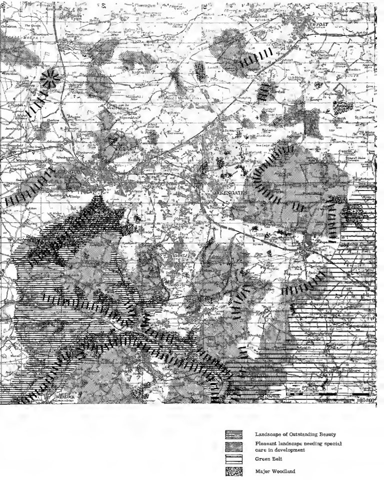
AGRICULTURAL QUALITY 6



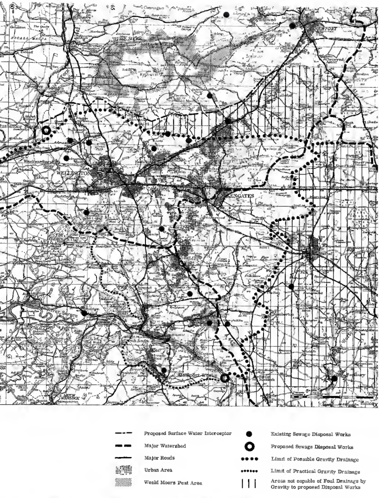
- ■ Grade 1
- ▩ Grade 2
- ▦ Grade 3
- ▨ Grade 4
- ☐ Land in, or allocated for, Urban Use
- ☐ Land primarily in non-agricultural use (other than Urban Use)

GRADINGS SHOWN ON THIS MAP ARE PROVISIONAL

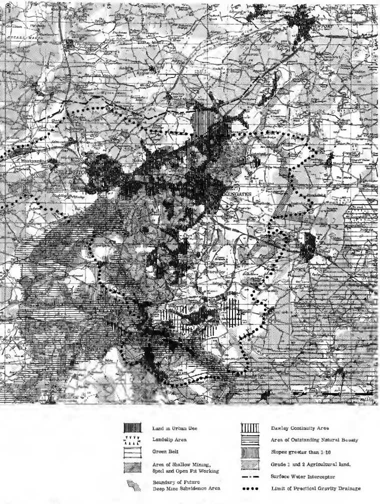
LANDSCAPE QUALITY 7


OAKENGATES
DAWLEY
Hadley
WELLINGTON
Crudgington
Shifnal
NEWPORT
1 mile
▤ Landscape of Outstanding Beauty
▨ Pleasant landscape needing special care in development
▭ Green Belt
▩ Major Woodland
| | | | Visual boundaries of landscape localities

DRAINAGE 8


NEWPORT
WELLINGTON
OAKENGATES
DAWLEY
Shifnal
Kynnersley
Preston
Stirchley
Kemberton
Ironbridge
Broseley
MUCH WENLOCK
Severn
Tibberton
Chetwynd
Crudgington
Wrockwardine
Admaston
Hadley
Madeley
Tong
Sheriffhales
Rodington
Longford
Lilleshall
Coalbrookdale
Sutton Maddock
— - — Proposed Surface Water Interceptor
▬ ▬ Major Watershed
—— Major Roads
▨ Urban Area
▨ Weald Moors Peat Area
● Existing Sewage Disposal Works
○ Proposed Sewage Disposal Works
●●●● Limit of Possible Gravity Drainage
•••••• Limit of Practical Gravity Drainage
| | | Areas not capable of Foul Drainage by Gravity to proposed Disposal Works

SCREEN OF RESTRAINTS 9



65
NEWPORT
KENGATES
Shifnal
Land in Urban Use
Landslip Area
Green Belt
Area of Shallow Mining, Spoil and Open Pit Working
Boundary of Future Deep Mine Subsidence Area
Dawley Continuity Area
Area of Outstanding Natural Beauty
Slopes greater than 1:10
Grade 1 and 2 Agricultural land.
Surface Water Interceptor
Limit of Practical Gravity Drainage

PROPOSALS 10